

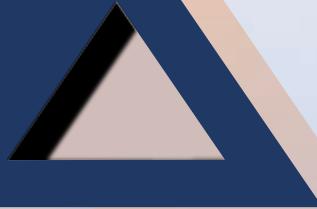
2020-2021

# UF Medical Physics

Department of Radiology – College of Medicine – University of Florida

Year in Review

# UF Medical Physics



UF Medical Physics is dedicated to improving the health and well-being of others through the advancement of the science of Medical Physics.

Despite a global pandemic impacting the world, UF Medical Physics continues to thrive thanks to a dynamic multi-disciplinary health care environment in which clinical interactions, research, and educational endeavors flourish.

Throughout 2020/2021, the outstanding efforts by our faculty, residents, students, interns, alumni, and administrative staff have enabled our residency, graduate, and undergraduate internship programs to grow exponentially and emerge as flagship programs in Medical Physics.

We are committed to excellence and strive to ensure a diverse, equitable, and inclusive environment in which all members of our team are valued. Together, we will work collaboratively to embrace a future filled with opportunities for positive growth and development.



**Manuel M Arreola, PhD**  
Vice Chair, Medical Physics

Clinical Radiological Physics

Medical Physics Graduate Program

Society of Health and Medical Physics Students

Diagnostic Imaging Medical Physics Residency Program

Medical Physics Undergraduate Internship Program

- ▼ Clinical Support
- ▼ Research
- ▼ Education



# Medical Physics

Healthcare Selection  
Techniques Exposure dose  
Leadership Optimization  
Physicists  
Research Dosimetry  
Development Consultant  
Consultant modalities  
Scientific TEAMWORK  
Prevention  
Maintenance  
Quality  
Evidence  
Nuclear Medicine  
Radiology Instrumentation  
Calibration Acceptance  
Safety Specific Medical Devices  
Knowledge Imaging  
Patient Protection  
Protocols Measurement  
Commissioln  
Technology  
Radiation Protection  
Management  
Protocols  
Technology  
UF Medical Physics

# Clinical Radiological Physics

The Division of Clinical Radiological Physics is integrally involved in the clinical support, research, and educational endeavors of the University of Florida. Our initiatives span throughout the UF Health system, to include Gainesville, Jacksonville, and other affiliated entities.

Our team is comprised of a stellar group of clinical diagnostic medical physicists; diagnostic imaging medical physics residents; medical physics graduate assistants and student assistants (MS and PhD); and undergraduate interns.

Together, we form a diverse group of colleagues dedicated to Medical Physics.

# Clinical Radiological Physics

2020-2021



Manuel M Arreola, PhD  
Faculty



Izabella Barreto, PhD  
Faculty



David Gilland, PhD  
Faculty



Stephanie Leon, PhD  
Faculty



Lynn N Rill, PhD  
Faculty



BC Schwarz, PhD  
Faculty



Alok Shankar, PhD  
Resident



Justin Brown, PhD  
Resident



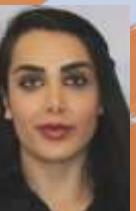
Mercy Akerele, PhD  
Resident



Nathalie Correa  
Graduate Assistant



Megan Glassell  
Graduate Assistant



Anahita Heshmat  
Graduate Assistant



Homa Mojabi  
Graduate Assistant



TJ Moretti  
Graduate Assistant



Zahra Razi  
Graduate Assistant



Colin Schaeffer  
Graduate Assistant



Natalia Carrasco-Rojas  
Student Assistant



Aroon Pressram  
Student Assistant





## Clinical Radiological Physics Medical Physicists



Together,  
we form a  
diverse group  
of colleagues  
dedicated to  
Medical Physics.

Dr Arreola  
Manuel



Dr Arreola, Vice Chair, oversees all aspects of Medical Physics at UF Health. This includes the clinical support, research, and education goals that support the overall mission of the prevention, diagnosis, and treatment of diseases.

As Division Chief and Assistant Professor, Dr Arreola directs the highest caliber of medical physicists in advancing the practice of medical physics through application of mathematics and physics principles; innovative research and development; and who, through responsible clinical practice, promotes the highest quality medical services for our patients.

As director of the graduate program, he oversees a multi-disciplinary group of esteemed faculty and a growing group of exceptional students (MS and PhD) who will become future leaders in the field.

Dr Arreola is committed to diversity, inclusiveness, and equality. This commitment is reflected in the culture of the Division and the programs that he leads, all of which are trailblazing a future of global collaboration and engagement.

Dr Barreto  
Izabella



Dr Barreto, Assistant Professor, oversees clinical projects focused on improving patient care in Radiology. She has successfully secured external funding for several of these clinical research projects.

Her primary research interests are in clinical CT protocol optimization, balancing radiation dose and diagnostic image quality, and supporting the successful integration of new imaging technology into the clinic.

Dr Barreto also serves as faculty for the graduate and residency programs. She teaches several courses, serves on student research committees, and advises undergraduate, MS, and PhD students.

Dr Barreto is also the founder and director of UF's Medical Physics Undergraduate Internship Program.

She is actively involved in leadership training, public education of medical physics, and international outreach through the American Association of Physicists in Medicine.

In May 2021, Dr Barreto passed the Part 3 Oral Exam of the American Board of Radiology (ABR) and is now recognized as an ABR Diplomate in Diagnostic Medical Physics.

Dr Gilland  
David



Dr Gilland, Senior Lecturer, teaches several courses in the medical physics graduate program and is an active member on several graduate student supervisory committees.

His areas of interest include iterative reconstruction methods in tomography, nuclear medicine instrumentation, and radiological imaging theory.

His recent research efforts are in the design of novel gamma cameras for nuclear medicine imaging, and he currently collaborates with a commercial manufacturer of a molecular breast imaging system.

Dr Gilland is also active in the Diagnostic Imaging Medical Physics Residency Program, including serving as a preceptor for competency assessment of third year residents.



## Clinical Radiological Physics Medical Physicists

Dr Leon

Stephanie



Dr Leon, Assistant Professor, is a triple Gator (BS, MS, PhD) who returned to Gainesville to join the Radiology faculty in 2016.

Her primary clinical responsibilities include nuclear medicine and mammography.

She is involved in research projects in several areas, including CT, nuclear medicine, and fluoroscopy.

Dr Leon is the Assistant Program Director for both the graduate program and the residency program, and she serves as a preceptor for competency assessment of third year residents (nuclear medicine).

She is also the course director for three graduate courses and advises MS and PhD students.

Dr Rill

Lynn



Dr Rill, Assistant Professor, specializes in the area of patient skin dose measurements and peak skin dose estimations for fluoroscopically-guided interventional procedures, patient dose tracking, and hospital policy development.

Dr Rill is the program director of the Diagnostic Imaging Medical Physics Residency Program, which recently expanded to a three-year program. Under her leadership, the success of the program is evident in the recruitment and employment of our graduates at esteemed institutions across the United States – our residents not only receive multiple competitive offers, but often have a position secured prior to graduation.

Dr Rill also serves as faculty of the Medical Physics Graduate Program, and is the course instructor for Diagnostic Physics I. She serves as a mentor to our students and often assists them with their preparations for applying to residencies.

Dr Schwarz

BC



Dr Schwarz, Assistant Professor, specializes in cardiology / interventional fluoroscopy, which is the focus of his clinical work and research interests.

He serves on the faculty of the Diagnostic Imaging Medical Physics Residency program and is actively engaged in the supervision of residents, to include testing oversight.

He also serves on the faculty of the Medical Physics Graduate Program, and is a course instructor for several graduate courses. He serves as an advisor to PhD students, serves on student committees, oversees student research, and mentors multiple students.

Dr Schwarz also designed, implemented, and oversees the oral portion of the pre-qualifying exam, a required component of PhD admissions that assesses the capability and potential of prospective students to succeed during doctoral studies by evaluating their background medical physics knowledge.



## Clinical Radiological Physics Exemplary Teacher Awards



Dr Barreto



Dr Leon

### Exemplary Teacher Awards

Each year, departments in the College of Medicine are invited by the Senior Associate Dean of Educational Affairs to nominate faculty for the award of exemplary teachers. Faculty are selected based on the excellence of their teaching of medical students, residents and fellows, physician assistant students, graduate students, post doctoral fellows, and mentorship of junior faculty.

UF Medical Physics faculty were recognized as Exemplary Teachers in consecutive years: Dr Izabella Barreto, Assistant Professor (2020); and Dr Stephanie Leon, Assistant Professor (2021). Dr Barreto and Dr Leon's contributions towards UF's educational mission are truly appreciated. We look forward to their continued involvement in the education and training of our future medical scientists and health care providers.



## Clinical Radiological Physics Association for Academic Women



Dr Barreto

### Association for Academic Women

Special thanks to Dr Izabella Barreto, Assistant Professor, for her exceptional leadership as the President of the Association for Academic Women (AAW) during 2019-2020. The AAW strives to advance the goals of UF's female faculty and staff.

Under Dr Barreto's guidance, the AAW offered free educational programming, facilitated a tenure and promotion workshop, and offered many opportunities for networking. She also organized a new AAW Scholarship for Emerging Leaders award for three AAW members to attend the 2020 UF Inspiring Women Leaders Conference. In addition, she participated in a new UF initiative led by the Chief Diversity Officer designed to empower leaders and enhance the diversity and climate of the University.



Dr Kent Fuchs, UF President, and Dr Barreto



# Clinical Radiological Physics

## AAPM & FLAAPM – 2020 & 2021



### American Association of Physicists in Medicine

UF Medical Physics faculty were well represented at the 2020 & 2021 American Association of Physicists in Medicine and Florida Chapter of the American Association of Physicists in Medicine meetings.



### FLAAPM Leadership

Three UF Medical Physics faculty currently serve as FLAAPM Officers:

#### **Dr Stephanie Leon**

Past-President

#### **Dr BC Schwarz**

President Elect

#### **Dr Manuel Arreola**

AAPM Board Representative



Dr Schwarz

#### **Dr BC Schwarz, Assistant Professor**

Moderated a session titled “*An Example Pre-, Intra- and Post-Procedure Clinical Workflow for General Fluoroscopy and FGI Procedures*” as part of a Self Assessment Module (SAM) Imaging Educational Course titled “*Fluoroscopic Dose Tracking: Trials, Tribulations, and Successes*”. AAPM; Virtual; 2020.



Dr Leon

#### **Dr Stephanie Leon, Assistant Professor**

“*Focused’ CT: A Reconstruction Algorithm Permitting Radiation Dose Reduction for Region-of-Interest Viewing*”; AAPM. Virtual; 2021.

“*Career Preparation for Graduate Students: Preliminary Evaluation of an Introductory Course on the Profession of Medical Physics*”; AAPM ; Virtual; 2021.

“*A Phantom-Based Assessment of Low-Contrast Performance Comparing Iterative Reconstruction Algorithms in CT*”; AAPM; Virtual; 2020.



Dr Barreto

#### **Dr Izabella Barreto, Assistant Professor**

“*It only took a pandemic: Engaging online students with active learning strategies*”; Education Council Symposia; AAPM; Virtual; 2021

“*You Spin Me Right Round: Approaches to Measuring CT Dose in Helical Modes*”; SAM Imaging Educational Course; AAPM; Virtual; 2021.

“*Your Technical Skills Won’t Get You There: Identifying Vital Skills to Thrive in Your Career*”; Medical Physics Leadership Academy Professional Symposium; AAPM; Virtual; 2021.

“*CT Protocol Optimization: Why it matters, what is required, and how to do it*”; FLAAPM; 2021.



## Clinical Radiological Physics Global Engagement



Dr Barreto



Dr Huq



Ms Parker

### AAPM International Committee

Under the American Association of Physicists in Medicine's (AAPM's) new International Council and Global Needs Assessment Committee (GNAC), Dr Izabella Barreto, Assistant Professor, organized a session at the 2021 19th South-East Asian Congress of Medical Physics, the 13th Annual Congress of Thai Medical Physicist Society, and the 14th Annual ASEAN College Of Medical Physics on Phuket island, Thailand. Together with the Chairman of the AAPM Board of Directors, Dr Saiful Huq, and the Chair of the AAPM's Equipment Donation Program Subcommittee (EDPSC), Stephanie Parker, the team presented on Global Engagement through the AAPM's International Council (IC).

The GNAC has recently finalized a needs assessment survey and through the Global Representatives Subcommittee (GRSC), will distribute it to medical physicists and institutional leaders in low-to-middle income countries to help guide future activities of the IC and EDPSC.



## Clinical Radiological Physics Outreach



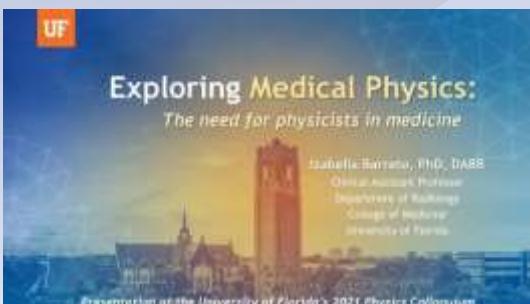
Dr Barreto

### UF Physics Colloquium

In October 2021, Dr Izabella Barreto, Assistant Professor, presented as part of the UF Physics Colloquium. Dr Barreto's seminar was titled "***Exploring Medical Physics: The need for physicists in medicine***".

Few patients are aware that medical physicists contribute to their healthcare, and many students don't know that it can be a rewarding career option. The growing clinical demand for medical physicists has increased the number of graduate programs and clinical residencies by more than seven-fold.

Dr Barreto's session covered the historical development and importance of the medical physics field, typical tasks a medical physicist performs (in clinical, research, academic, and industry settings), and pathways to become a medical physicist.





# Medical Physics Graduate Program

## Research Highlights

### Research Highlights

Faculty in the UF Division of Medical Physics are actively involved in multiple research endeavors!

**UF Medical Physics Research Highlight**  
Isabella Barreto, PhD

A report on the inter-observer and inter-instrument variability of end-user calibrations of the RIC-100 32P beta emitting brachytherapy source.

Maiti L, Barreto I, Colino G, Durante A, Penley C, Devid C  
*Biotherapy, 2021*

**UF Medical Physics Research Highlight**  
Stephanie Lewis, PhD

Letter to the Editor:  
Rationale for using a C-arm fluoroscope to deliver a kilovoltage radiotherapy treatment to COVID-19 patients

Bial D, Moyes H, Laro S, Hamill D, Sarris G, Li J, Syrigos T, Meiss A, Gherardi E, Pauer O, Wenzel A, Chikudate F, Mertens M, Argon Z, Gerasoulis A, Herkovich J  
*Cancer Treatment & Research, 2020*

**UF Medical Physics Research Highlight**  
Isabella Barreto, PhD

Low-dose CT in pediatric craniosynostosis: an institutional experience in reducing radiation while maintaining diagnostic image quality.

Barreto I, Teixeira I, Rodriguez D, Cheng J, Veneczel L  
*Pediatric Radiology, 2021*

**UF Medical Physics Research Highlight**  
Stephanie Lewis, PhD

Dose Simulations of an Early 20th Century Kilovoltage Pneumonia Radiotherapy Technique Performed with a Modern Fluoroscope

Bar D, Mayas H, Leon S, Hamill D, Sarris G, Li J, Syrigos T, Meiss A, Gherardi E, Pauer O, Wenzel A, Chikudate F, Mertens M, Argon Z, Gerasoulis A, Herkovich J, Gherardi E, Wilson K, Laro S  
*Cancer Treatment & Research, 2020*

**UF Medical Physics Research Highlight**  
BC Schwartz, PhD

Specific absorbed fractions for a revised series of the UF/NCI pediatric reference phantoms: internal photon sources

Schwartz, Bryan, Grubbs, William, Mazzoni, Michael, Dewar, Shokouh, Jaffar, Dennis, Lee, Chapman, Eich, Weales  
*Physics in Medicine and Biology, 2020*

**UF Medical Physics Research Highlight**  
Isabella Barreto, PhD

Iodinated contrast extravasation on post-revascularization computed tomography mimics magnetic resonance hyperintense acute reperfusion marker: a case study

de Frey J, Yu C, Schwartz BC, Barreto I, Reiss J, DiCarlo RD, Shupko AM  
*Journal of Vascular and Endovascular Sciences, 2020*

**UF Medical Physics Research Highlight**  
BC Schwartz, PhD

Specific absorbed fractions for a revised series of the UF/NCI pediatric reference phantoms: internal electron sources

Schwartz, Bryan, Grubbs, William, Mazzoni, Michael, Dewar, Shokouh, Jaffar, Dennis, Lee, Chapman, Eich, Weales  
*Physics in Medicine and Biology, 2020*

**UF Medical Physics Research Highlight**  
Isabella Barreto, PhD

Comparison of metal artifact reduction using single-energy CT and dual-energy CT with various metallic implants in cadavers

Barreto, Isabella I, Pepe, Eric, Stiles, Jason, Dean, Cooper, Messer, Tara, Remo, James, Olgan, Catherine, Qualls, Nathan, Correa, Nathalia, Kil, Lynn, Almeida, Marcella  
*European Journal of Radiology, 2020*

**UF Medical Physics Research Highlight**  
Stephanie Lewis, PhD

The helically-acquired CTDivol as an alternative to traditional methodology

Jain S, Barreto I, Dugay L, Zheng Z, Barreto I, Schwartz B  
*Journal of Applied Clinical Medical Physics, 2020*

**UF Medical Physics Research Highlight**  
Isabella Barreto, PhD

Patient size matters:  
Effect of tube current modulation on size-specific dose estimates (SSDE) and image quality in low-dose lung cancer screening CT

Barreto I, Verma N, Qualls N, Olgan C, Correa M, Mohamed T  
*Journal of Applied Clinical Medical Physics, 2020*

**UF Medical Physics Research Highlight**  
BC Schwartz, PhD

An Example Pre-, Intra-, and Post-Procedure Clinical Workflow for General Fluoroscopy and FGI Procedures

2020 ACR AAPM - CDRM Meeting Session: Fluoroscopic Dose Tracking Tools, Techniques, and Initiatives



# Clinical Radiological Physics Graduate Assistants

## Graduate Assistants

The Division of Medical Physics currently offers assistantships to seven graduate students from the Medical Physics Graduate Program. We also fund two student assistants in the program.

In addition to being full-time students, our graduate and student assistants participate in multiple research initiatives and are responsible for performing physics testing on mobile fluoroscopy units (c-arms and mini c-arms) and mobile radiography units. Their testing responsibilities include units hosted by departments across the hospital (Emergency, Urology, Endoscopy, etc).

By performing testing of mobile fluoroscopic and radiographic systems, graduate/student assistants gain experience in relevant physics testing throughout their graduate career while also facilitating the workload of the division. These experiences become a foundation for their future development as medical physicists. Graduate/student assistant facilitation of testing has become particularly relevant since 2019, due to new Joint Commission regulations requiring annual testing of these units.



Natalia Carrasco-Rojas



Nathalie Correa



Megan Glassell



Anahita Heshmat



Homa Mojabi



TJ Moretti



Aroon Pressram



Zahra Razi



Colin Schaeffer





# Clinical Radiological Physics

## UF/UAM Collaborations



Sylvia Hidalgo, PhD



Manuel Arreola, PhD

### Lecture Series

In 2020, the Division of Medical Physics collaborated with the Universidad Autonoma Metropolitana (UAM) in Mexico City, Mexico, for a special course as part of “Posgrado de la Especializacion en Fisica Medica Clinica”.

Students from across Mexico and South America joined Dr Silvia Hidalgo from UAM and Dr Manuel Arreola from UF via Zoom for a special four-week lecture series titled “Temas selectos de Fisica Medica Clinica II”.

We were honored to be part of this international collaboration in Medical Physics!

### Course & Symposium

In 2020 & 2021, the Division of Medical Physics continued its ongoing collaboration with the Universidad Autonoma Metropolitana (UAM) for the 2<sup>nd</sup> and 3<sup>rd</sup> (respectively) Annual Medical Physics Course and Symposium.

This course and symposium (both held in Spanish), encompassed all aspects of Medical Physics and was accessible via Zoom to students from across Mexico and South America. Participants included faculty and graduate students from UF and UAM. UF participants included Medical Physics faculty: Dr Manuel Arreola and Dr Izabella Barreto; Medical Physics resident: Dr Edmond Olgun; and Medical Physics PhD Students: Nathalie Correa and Catherine Olgun.

In 2021, featured presentations included sessions on Machine Learning and Artificial Intelligence (AI) by speakers from the United Kingdom.

We look forward to ongoing global collaborations.



*The lecture series, course, and symposium was accessible to students across Mexico and South America via Zoom.*





## Clinical Radiological Physics Course Participation



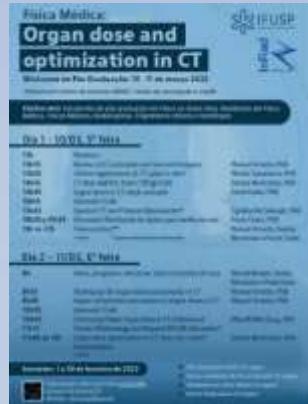
Manuel Arreola, PhD



Michael McNitt-Gray, PhD



Cynthia McCollough, PhD



### Coordinated Research Project by the IAEA

UF Medical Physics is excited to announce its participation in a CT physics and dosimetry course at the University of Sao Paulo in Brazil. “Fisica Medica: Organ dose and optimization in CT” is scheduled on the 10th & 11th of March, 2022, and will include three sessions presented by Dr Manuel Arreola, Vice Chair of Medical Physics: “Review of CT principles and new technologies”, “Techniques for organ dose assessments in CT”, and “Impact of technical parameters in organ doses in CT.”

The course will also feature two of the most influential medical physicists in CT in the US (and prominent AAPM leaders): Dr Cynthia McCollough from Mayo Clinic Rochester and Dr Michael McNitt-Gray from UCLA.

We are honored to be included in this exceptional event and look forward to continued global interactions in Medical Physics.



## Clinical Radiological Physics Webinar



Manuel Arreola, PhD

### IOMP-ALFIM Webinar

Dr Manuel Arreola, Vice Chair of Medical Physics, gave a webinar titled “Seguridad y Protección en salas de Resonancia Magnética: Actualización”, for the International Organization for Medical Physics (IOMP) and the Latin American Association of Medical Physics (ALFIM) in February 2021.

Dr Arreola’s presentation, which was in Spanish, covered the various components and instrumentation of modern MR scanners; the biological effects of exposure to magnetic fields and radiofrequency fields; and the various safety recommendations for the design and clinical use of MRI suites (as described by the guidelines of the American College of Radiology).





# Clinical Radiological Physics

## Board of Directors



Manuel Arreola, PhD

### SDAMPP Board of Directors

Dr Manuel Arreola, Vice Chair of Medical Physics, has been elected to the Board of Directors of the Society of Directors of Academic Medical Physics Programs (SDAMPP) for a three-year term beginning in 2022.

SDAMPP strives to advance education in the scientific field of medical physics through discussions, meetings, collaboration, and the shared perspectives of those in positions of leadership within academic programs of medical physics.

SDAMPP's coordination of program directors of medical physics graduate programs and residencies (in all specialties of medical physics – radiation oncology, diagnostic, and nuclear medicine) is an essential channel of communication between the medical physics profession and the American Board of Radiology (ABR).

For the next two years, Dr Arreola will serve on the Board of Directors of the two main medical physics societies – the SDAMPP and the American Association of Physicists in Medicine (AAPM).



# Clinical Radiological Physics

## IAEA Program



Manuel Arreola, PhD

Zahra Razi, MS

### Coordinated Research Project by the IAEA

Congratulations to Dr Manuel Arreola, Vice Chair of Medical Physics, and Zahra Razi, Medical Physics Graduate Program PhD Student, on their contributions to the publication of the [International Atomic Energy Agency's \(IAEA\) Program on Remote and Automated QC in Radiography and Mammography](#).

This publication is the result of a three-year international Coordinated Research Project by the IAEA, which was spearheaded by Dr Arreola and others during his three-month stay at the IAEA headquarters in Vienna in 2017. The project will now move to Phase 2, with implementation of the initial pilot study in ten sites worldwide. UF Radiology and the IAEA have signed an agreement for Dr Arreola to continue participating in the project for the next three years.

The publication's companion paper "*The IAEA Remote and Automated Quality Control Methodology for Radiography and Mammography*" by Mora, Pfeiffer, Zang, Bosmans, Delis, Razi, Arreola and Tsapakis, has been accepted for publication in the Journal of Applied Clinical Medical Physics (JCAMP). The paper includes the crucial work done by Zahra Razi in the clinical implementation of the methodology.

### Contributors to Drafting & Review

**Arreola, M:** Uni. of Florida, USA

**Bosmans, H:** Katholieke Uni. Leuven, Belgium

**Chevalier, M:** Complutense Uni. of Madrid, Spain

**Delis, H:** International Atomic Energy Agency

**Herbst, C P:** Uni. of the Free State, South Africa

**Mora, P:** Uni. de Costa Rica, Costa Rica

**Ng, Kwan-Hoong:** Uni. of Malaya, Malaysia

**Tsapaki, V:** International Atomic Energy Agency



# Clinical Radiological Physics Gator Gathering



***It's GREAT to be a Florida Gator!***

Despite the ongoing pandemic, the Medical Physics Gator Nation was able to come together in 2020 and 2021 for a Virtual Gator Gathering!

The annual event brought together alumni, faculty, residents, and students – spanning from 1970s graduates to 2021 incoming students! It was a wonderful opportunity to hear about the history of the program and form new connections!

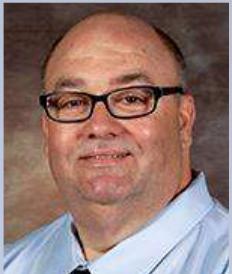




# Clinical Radiological Physics Technologist Training



Freenae Williams, MBA/HCM, RT(R)(M)



Tony Hofmann, B.A.S., RT(R)(CT)

More info about the School of Radiologic Technology at UF Jacksonville can be accessed via the following link:

[School of Radiographic Technology at UF Jacksonville](#)

## School of Radiologic Technology

The Division of Medical Physics teaches three courses for the School of Radiologic Technology at UF Jacksonville.

Under the leadership of Freenae Williams, Program Director, and Tony Hofmann, Clinical Coordinator, the School offers a professional radiography program structured academically and clinically to give students optimum preparation for a rewarding career in radiography.

Courses taught by the Division include RT 110 Radiation Protection; RT 240 Intro to Radiologic Physics & Radiobiology; and RT 250 Radiologic Physics & Electrical Circuitry.

We are so proud to be part of this exceptionally run program and congratulate the Class of 2021!

Julianne Brittingham  
Shianne Brown  
Macie Hamel  
Bianca Herrera  
Anthony Jackson  
Alonie Little  
John Massey





# Clinical Radiological Physics Website & Social Media



## Website

For the most up-to-date division news and program updates, visit our website at  
[MedPhysics.med.ufl.edu](http://MedPhysics.med.ufl.edu)



## Twitter

UF Medical Physics is on Twitter! Follow us @UFMedPhys. The UF Society of Medical Physics is also on Twitter! Follow them @UF\_SHMPS



# Clinical Radiological Physics IT Infrastructure



## Zoom

Despite a world-changing pandemic, UF Medical Physics seamlessly transitioned to live online sessions (lectures, presentations, meetings, seminars, labs, etc) via Zoom during 2020.

We were, however, ecstatic to return to live, in-person sessions again in 2021 (masked and distanced)!



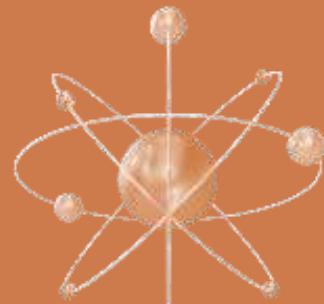
# Graduate Program

DEADLINES CERTIFYING DYNAMIC TEACHING ASSISTANTS INNOVATION OUTSTANDING RECRUITMENT PROFESSIONAL COLLABORATION DISERTATION REGISTRATION MISSION THE DEGREE COURSES QUIZZES ADVISORS GPA TRANSCRIPTS GRADES EXCITEMENT STUDENTS DEVELOPMENT CLASSES VALUES MASTERS INTEGRITY HONESTY COMMUNICATION

UF Medical Physics

# Medical Physics Graduate Program

The UF Medical Physics Graduate Program has been in continuous existence for more than sixty years and has produced hundreds of Medical Physics graduates over that time. The program received initial accreditation by the Commission on Accreditation of Medical Physics Education Programs (CAMPEP) in November of 2001, and was re-accredited in 2006, 2011, and 2016.



# Medical Physics Graduate Program

## Faculty



Manuel Arreola, PhD



Izabella Barreto, PhD



Wesley Bolch, PhD



Frank Bova, PhD



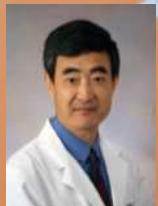
David Gilland, PhD



Perry Johnson, PhD



Stephanie Leon, PhD



Jonathan Li, PhD



Chihray Liu, PhD



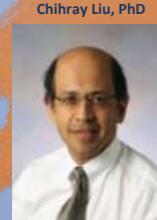
Bo Lu, PhD



Walter O'Dell, PhD



Lynn Rill, PhD



Sanjiv Samant, PhD



Bryan Schwarz, PhD



Guanghua Yan, PhD



Yawei Zhang, PhD

# Medical Physics Graduate Program

## PhD Students



Camilo Correa



Nathalie Correa



Sean Domal



Megan Glassell



Anahita Heshmat



Shorug Alshammari



Jared Baggett



Ronnie Bolden



Florian Buhlm



Jacob Campbell



Amanda Jackson



Kati McCord



Homa Mojabi



TJ Moretti



Naipy Perez



Natalia Carrasco-Rojas



Bobby Dawson



Matthew Frain



Mauricio Garrido



Doug Goddard



James Perez-Sanchez



Bonnie President



Zahra Razi



Colin Schaeffer



Edward Stafford



Rosette Gonzalez



Grey Haneberg



Ben Heggie



Tom Jakubowski



Liana Mulet



Sidney Tazeh



Wen-Chih Tseng



Jingxi Weng



Aroon Pressram



Keaton Reiners



Ryan Stephenson



Wyatt Smither



Graham Stoddard



## Medical Physics Graduate Program

### Faculty - Diagnostic

Dr Arreola

Manuel



Dr Arreola is Vice Chair and an Assistant Professor in the Department of Radiology in Gainesville and is the Director of the Graduate Program.

As part of the Diagnostic Medical Physics faculty, he serves as an instructor for three courses: ENU 6657, Diagnostic Physics I; ENU 6652, Diagnostic Physics II; BME 6505, Diagnostic Physics III, and GMS 5905, Seminar in Medical Physics.

He also serves on PhD committees and serves as a MS advisor.

Dr Arreola oversees the Diagnostic Imaging Medical Physics Research Lab, which includes projects in Computed Tomography (CT); Interventional Radiology (IR) and Fluoroscopy; Magnetic Resonance Imaging (MRI); and Mammography.

Dr Barreto

Izabella



Dr Barreto is an Assistant Professor in the Department of Radiology in Gainesville.

As part of the Diagnostic Medical Physics faculty, she serves as an instructor for two courses: ENU 5626, Radiation Biology and ENU 6652, Diagnostic Physics II.

Dr Barreto also serves on PhD committees and serves as a MS advisor.

Her current research focuses on clinical CT protocol optimization; balancing radiation dose and diagnostic image quality; and supporting the successful integration of new imaging technology into the clinic.

Dr Bolch

Wes



Dr Bolch is a Professor in the Department of Biomedical Engineering in Gainesville.

As part of the Diagnostic Medical Physics faculty, he serves as an instructor for two courses: BME 6535, Radiological Physics, Measurements & Dosimetry and ENU 6623, Radiation Dosimetry.

He also serves on PhD committees and serves as a MS advisor.

Dr Bolch oversees the Advanced Laboratory for Radiation Dosimetry Studies (ALRADS), which focuses on development of rapid clinically accessible computational tools for use by radiologists and radiation oncologists to assess radiation organ dose and associated secondary cancer risks to patients following diagnostic imaging or radiation safety.



## Medical Physics Graduate Program

### Faculty - Diagnostic

Dr Bova

Frank



Dr Bova is a Professor in the Department of Neurosurgery in Gainesville.

As part of the Diagnostic Medical Physics faculty, he serves on PhD committees and serves as a MS advisor.

Dr Bova oversees the Stereotactic Radiosurgery Lab, which engages in a variety of studies, including developing just-in-time manufacturing methods for surgical implants that involves the use of rapid prototyping equipment; and conducting experiments to develop and evaluate techniques and equipment to be used in image-guided radiation therapy (CT, MRI, US), intensity-modulated radiation therapy, image-guided radiosurgery, image-guided surgery and stereotactic surgery, image guided large animal surgery, and mixed reality simulation.

Dr Gilland

David



Dr Gilland is a Senior Lecturer in the Department of Radiology in Gainesville.

As part of the Diagnostic Medical Physics faculty, he serves as an instructor for two courses: ENU 6659, Nuclear Medicine and ENU 5658, Image Systems Analysis.

Dr Gilland also serves on PhD committees and serves as a MS advisor.

His current recent research is focused on the design of novel gamma cameras for nuclear medicine imaging.

Dr Leon

Stephanie



Dr Leon is an Assistant Professor in the Department of Radiology in Gainesville and the Assistant Director of the Graduate Program.

As part of the Diagnostic Medical Physics faculty, she serves as an instructor for four courses: BME 6590, Survey of Medical Physics; GMS 5905, Research Methods in Medical Physics; ENU 6636, Medical Radiation Shielding & Protection; and ENU 6657, Diagnostic Physics I.

Dr Leon also serves on PhD committees and serves as a MS advisor.

Her current research focuses on CT, nuclear medicine, and fluoroscopy.



## Medical Physics Graduate Program

### Faculty - Diagnostic

Dr Rill

Lynn



Dr Rill is an Assistant Professor in the Department of Radiology in Gainesville.

As part of the Diagnostic Medical Physics faculty, she serves as an instructor for ENU 6657, Diagnostic Physics I.

She also serves on PhD committees and serves as an MS advisor.

As the Director of the UF Diagnostic Imaging Medical Physics Residency Program, Dr Rill provides students with valuable residency guidance.

Her current research focuses on patient skin dose measurements and peak skin dose estimations for fluoroscopically-guided interventional procedures and patient dose tracking

Dr Schwarz

BC

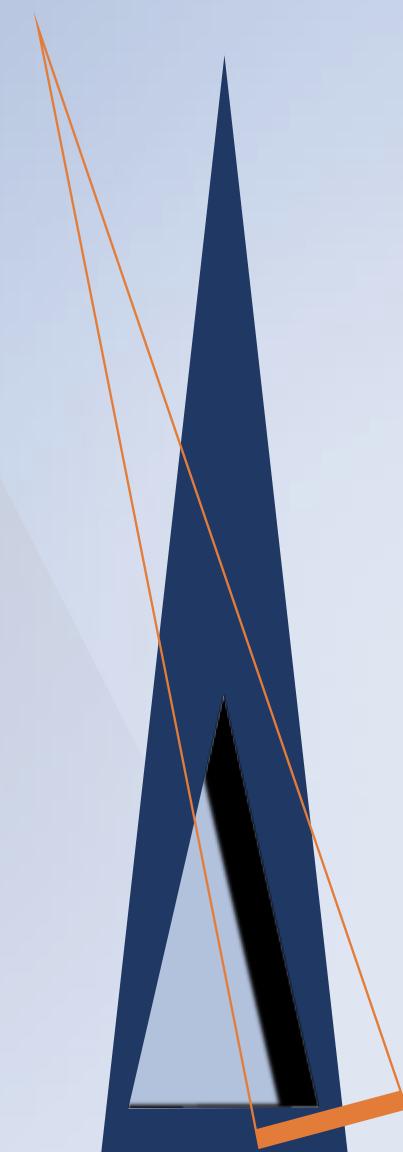


Dr Schwarz is an Assistant Professor in the Department of Radiology in Gainesville.

As part of the Diagnostic Medical Physics faculty, he serves as an instructor for four courses: ENU 5626, Radiation Biology; BME 6590, Survey of Medical Physics; BME 6533 Radiological Anatomy; and GMS 5905, Research Methods in Medical Physics.

Dr Schwarz also serves on PhD committees and serves as a MS advisor.

His current research focuses on cardiology/interventional fluoroscopy.





## Medical Physics Graduate Program

### Faculty - Therapeutic

Dr Johnson  
Perry



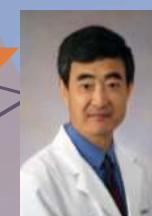
Dr Johnson is an Associate Professor and the Director of Physics at the UF Health Proton Therapy Institute with the Department of Radiation Oncology in Jacksonville.

As part of the Therapeutic Medical Physics faculty, he serves as an instructor for ENU 6636, Medical Radiation Shielding and Protection.

Dr Johnson also serves on PhD committees and serves as an MS advisor.

His current research focuses on mixed reality visualization and how this emerging technology can be utilized within radiation oncology to improve patient care.

Dr Li  
Jonathan



Dr Li is a Professor in the Department of Radiation Oncology in Gainesville.

As part of the Therapeutic Medical Physics faculty, he serves as an instructor for two courses: BME 6591, Therapy Physics I and BME 6592, Therapy Physics II.

Dr Li also serves on PhD committees and serves as a MS advisor.

His current research involves IMRT/VMAT plan optimization and verification, LINAC quality assurance, and MRI-guided radiation therapy.

Dr Liu  
Chihray



Dr Liu is a Professor in the Department of Radiation Oncology in Gainesville.

As part of the Therapeutic Medical Physics faculty, he serves as an instructor for BME 6591, Therapy Physics I .

Dr Liu also serves on PhD committees and serves as a MS advisor.

In addition, Dr Liu oversees the Therapeutic Medical Physics Research lab, which engages in a variety of research projects focused on cancer treatment using radiation.

His current research focuses on optimizing the patient image guidance during treatment; treatment planning quality optimizations; using AI technology for radiation delivery QA analysis; and department workflow optimization.



## Medical Physics Graduate Program

### Faculty - Therapeutic

Dr Lu

Bo



Dr Lu is an Associate Professor in the Department of Radiation Oncology in Gainesville.

As part of the Therapeutic Medical Physics faculty, he serves as an instructor for two courses: BME 6591, Therapy Physics I and BME 6592, Therapy Physics II.

Dr Lu also serves on PhD committees and serves as a MS advisor.

His current research is focused on improving dose computation efficiency and building a new scheme for adaptive planning optimization.

Dr O'Dell

Walter



Dr O'Dell is an Associate Professor in the Department of Radiation Oncology in Gainesville.

As part of the Therapeutic Medical Physics faculty, he serves as a research mentor for graduate student research.

Dr O'Dell oversees the Medical Image and Computational Analysis Lab, which is interested in discovering and applying novel image analysis and image-based computational techniques for improved detection, follow-up, and treatment of cancer. Much of the work is highly translational, with direct application to the treatment of patients within the Department of Radiation Oncology.

His currently-funded projects focus on quantifying radiation toxicity to the heart and lungs.

Dr Samant

Sanjiv



Dr Samant is a Professor in the Department of Radiation Oncology in Gainesville.

As part of the Therapeutic Medical Physics faculty, he serves as an instructor for two courses: BME 6591, Therapy Physics I and BME 6592, Therapy Physics II.

Dr Samant also serves on PhD committees and serves as a MS advisor.

His current research is focused on imaging applications for MR-LINAC, including using AI based models for organ motion and MR only radiation therapy delivery; detector development (x-rays, neutrons for imaging); and 4D imaging for LINAC gating to compensate for lung motion.

He is the co-PI on a NASA grant and is collaborating with Philips on MR imaging development for radiation therapy.



## Medical Physics Graduate Program

### Faculty - Therapeutic

Dr Yan

Guanghua



Dr Yan is an Associate Professor in the Department of Radiation Oncology in Gainesville.

As part of the Therapeutic Medical Physics faculty, he serves as an instructor for two courses: BME 6591, Therapy Physics I and BME 6592, Therapy Physics II.

Dr Yan also serves on PhD committees and serves as a MS advisor.

As the Director of the UF Radiation Oncology Physics Residency Program, Dr Yan supervises the clinical training of two medical physics residents.

His current research focuses on applying artificial intelligence and machine learning to solve various clinical issues in radiation oncology such as improving treatment plan quality, enhancing quality assurance efficiency and efficacy, etc.

Dr Yan is also interested in medical informatics, developing software to streamline the clinical workflow in radiotherapy.

Dr Zhang

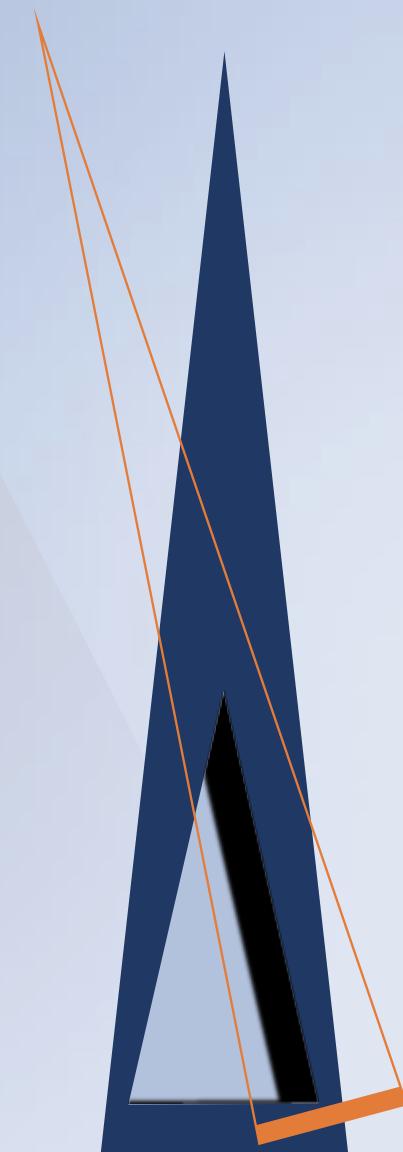
Yawei



Dr Zhang is an Assistant Professor at the UF Health Proton Therapy Institute with the Department of Radiation Oncology in Jacksonville.

As our newest faculty member, he looks forward to engaging in teaching opportunities, serving on PhD committees, and serving as a MS advisor.

His current research focuses on developing and optimizing cone-beam CT imaging techniques for IGRT.





## Medical Physics Graduate Program New Graduate Faculty



Perry Johnson, PhD

### Perry Johnson, PhD

Dr Perry Johnson, Associate Professor and the Director of Physics at the UF Health Proton Therapy Institute with the Department of Radiation Oncology in Jacksonville, was appointed as UF Medical Physics Faculty in November 2020. Dr Johnson graduated from the program in 2011.

Dr Johnson's current research focuses on mixed reality visualization and how this emerging technology can be utilized within radiation oncology to improve patient care.



Yawei Zhang, PhD

### Yawei Zhang, PhD

Dr Yawei Zhang, Assistant Professor at the UF Health Proton Therapy Institute with the Department of Radiation Oncology in Jacksonville, was appointed as UF Medical Physics Faculty in November 2021.

Dr Zhang's current research focuses on developing and optimizing cone-beam CT imaging techniques for IGRT.



## Medical Physics Graduate Program Faculty Accolades



Walter O'Dell, PhD

### Walter O'Dell, PhD

Congratulations to Dr Walter O'Dell on his promotion to Associate Professor in the Department of Radiation Oncology. Dr O'Dell's lab (Medical Image and Computation Analysis Lab) is an essential component of the Medical Physics Graduate Program and provides students with multiple research opportunities related to discovering and applying novel image analysis and image-based computational techniques for improved detection, follow-up, and treatment of cancer.



Frank Bova, PhD



William Friedman, MD

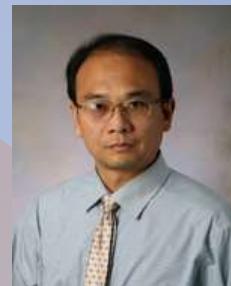
### Frank Bova, PhD

Congratulations to Dr Frank Bova, Professor in the Department of Neurosurgery, and his colleague, Dr William Friedman, who treated their 5,000<sup>th</sup> patient in 2020 using the Radiosurgery System they developed in the 1980s. Dr Bova and his Stereotactic Radiosurgery Lab are integral to the Medical Physics Graduate Program.

Neurosurgery team treats  
5,000th patient with UF-  
invented radiosurgery system



## Medical Physics Graduate Program Funding – National Science Foundation



Bo Lu, PhD



Hongcheng Liu, PhD

### Bo Lu, PhD

Congratulations to Dr Bo Lu, Associate Professor in the Department of Radiation Oncology, and his colleague Dr Hongcheng Liu, Assistant Professor in the Department of Industrial and Systems Engineering, who were awarded \$350,000 by the National Science Foundation to support their research in the area of health system engineering. Dr Lu and Liu's research proposal (High-Fidelity Radiotherapy Treatment Planning via Almost Dimension-Free Zeroth-Order Algorithms) focuses on creating algorithms to improve methods of radiation therapy used in cancer treatments by optimizing the treatment planning process.



## Medical Physics Graduate Program Funding - NASA



Sanjiv Samant, PhD



Andrew Schuerger, PhD

### Sanjiv Samant, PhD

Congratulations to Dr Sanjiv Samant, Professor in the Department of Radiation Oncology, and his colleague Dr Andrew Schuerger, Assistant Professor in the Department of Plant Pathology, on being awarded a NASA Research Opportunities in Space and Earth Sciences (ROSES) 2019 Grant for their proposal titled "Interactive Effects of Vacuum, Ionizing Radiation, Temperature, and UV Irradiation on Bacterial Survival during Simulated European Orbiter and Lander Missions".



## Medical Physics Graduate Program Funding – NIH National Cancer Institute



Wesley Bolch, PhD



Harold Paganetti, PhD

### Wesley Bolch, PhD

Congratulations to Dr Wes Bolch, Distinguished Professor in the J. Crayton Pruitt Family Department of Biomedical Engineering, who will serve as dual Principle Investigator (along with his colleague Dr Harold Paganetti, Professor of Radiation Oncology at Massachusetts General Hospital) on a \$2.5 million National Institutes of Health/National Cancer Institute grant (funded over a five-year period) to develop methods to quantify the interaction of radiation with the immune system. The project's aim is to provide the modeling tools necessary to compute the distribution of radiation dose to circulating lymphocytes during external beam radiotherapy (by photons or protons) to treat immune cells as another "organ-at-risk", whose dose should be minimized through treatment optimization.

NIH Grant to Develop  
Methods to Quantify the  
Interaction of Radiation with  
the Immune System



# Medical Physics Graduate Program

## Research Seminars



### Research Seminars

Special thanks to our colleagues who gave special research seminars throughout the year ...

**Research Seminar**

2020-2021  
**Medical Physics Graduate Program**  
Please join us for a special research seminar by:  
**Perry Johnson, PhD**  
Associate Professor, Department of Radiation Oncology  
11:00<sup>AM</sup> Thursday, September 10  
(Via Zoom)  
"Mixed Reality for Medical Physicists"  
Medical Sciences - College of Medicine - University of Florida

**Research Seminar**

2020-2021  
**Medical Physics Graduate Program**  
Please join us for a special research seminar by:  
**Deanna H Pafundi, PhD**  
Assistant Professor, Mayo Clinic  
11:00<sup>AM</sup> Thursday, December 10  
(Via Zoom)  
"Applications of FDOPA Pet Imaging, Magnetic Resonance Elastography, and Dynamic Contrast Enhancement MRI for Treatment Planning and Response Assessment"  
Medical Sciences - College of Medicine - University of Florida

**Research Seminar**

2020-2021  
**Medical Physics Graduate Program**  
Please join us for a special research seminar by:  
**Xiaoying Liang, PhD**  
Interim Physics Chief of Proton Therapy  
Interim Co-Director of Physics  
UF Health Proton Therapy Institute  
2:00<sup>PM</sup> Thursday, March 18  
(Via Zoom)  
"Proton Therapy for Breast Cancer Treatment: Opportunities and Challenges"  
Medical Sciences - College of Medicine - University of Florida

**Research Seminar**

2021-2022  
**Medical Physics Graduate Program**  
Please join us for a special research seminar by:  
**Yawei Zhang, PhD**  
Medical Physicist - Assistant Professor  
UF Health Proton Therapy Institute  
3:00<sup>PM</sup> Wednesday, June 23  
(Via Zoom)  
"kV-MV Imaging and Patient-Specific Quality Assurance in Proton Radiation Therapy"  
Medical Sciences - College of Medicine - University of Florida



# Medical Physics Graduate Program Advisory Board



## Graduate Program Advisory Board

We are excited to announce that we have re-established the UF Medical Physics Graduate Program Advisory Board. As the program continues to establish itself as one of the premier Medical Physics graduate programs in the country, advice and support from our alumni will be essential in ensuring positive growth and development. We are honored to introduce our inaugural board members:



**Priscilla F Butler, MS**

Senior Director and Medical Physicist (Retired)  
American College of Radiology  
UF MS 1976



**Sanford L Meeks, PhD**

Director of Radiation Physics  
UF Cancer Center at Orlando Health  
UF PhD 1994



**Lindsey K Berkowitz, PhD**

Director of Imaging Physics  
Maine Medical Center  
UF MS 2007/UF PhD 2009



**Marlene H P McKetty, PhD**

Chief Physicist and Assistant Professor (Retired)  
Howard University Hospital  
UF MS 1975/UF PhD 1978



**Thomas Griglock, PhD**

Chief Diagnostic Imaging Physicist and Associate Professor  
Oregon Health and Science University  
UF MS 2009/UF PhD 2012



**Richard L Morin, PhD**

Brooks-Hollern Professor Emeritus  
Mayo Clinic Florida  
UF MS 1973



**David E Hintenlang, PhD**

Chief of Medical Physics  
The Ohio State University  
UF MP Program Director 2000-2016



**William S Properzio, PhD**

Director, Environmental Health and Safety  
Associate Professor, College of Engineering (Retired)  
University of Florida



**Kathleen M Hintenlang, PhD**

Medical Physicist  
The Ohio State University  
UF MS 1990/UF PhD 1998



**Kenneth N Vanek, PhD** (Lieutenant Colonel - USAF, Retired)

Professor Emeritus  
Medical University of South Carolina  
UF PhD 1976

Advice and support from our alumni will be essential in ensuring positive growth and development.



# Medical Physics Graduate Program Admissions



## Fall 2022 Admissions

The UF Medical Physics Graduate Program is in the midst of the Fall 2022 admissions cycle.

- **PhD applications** are accepted from October 15 to December 31 in the preceding year.
- **MS applications** are accepted from October 15 to January 31 in the preceding year.

Our Admissions Committee is comprised of faculty from all disciplines in the program – diagnostic medical physics, therapeutic medical physics, and health physics.

All admissions decisions are based on a Holistic Review, as outlined by the Association of American Medical Colleges (AAMC), in which each applicant is considered individually by balancing their academic metrics with experiences and attributes. In addition to academic achievements, the admissions committee looks for 15 core competencies for entering students:

**Core Competencies**  
Service Orientation  
Social Skills  
Cultural Competence  
Teamwork  
Oral Communication  
Ethical Responsibility  
Reliability & Dependability  
Resilience & Adaptability  
Capacity for Improvement  
Critical Thinking  
Quantitative Reasoning  
Scientific Inquiry  
Written Communication  
Living Systems  
Human Behavior

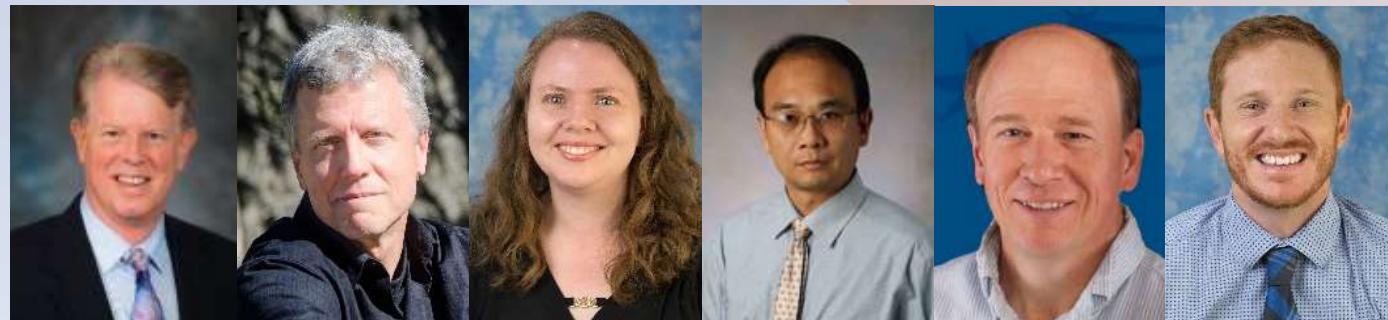
## GRE Requirement

Due to the ongoing pandemic, and after careful review and consideration, the Admissions Committee has decided to waive the GRE requirement for Fall 2022 applicants.

## CAMPEP Reaccreditation

The UF Medical Physics Graduate Program is currently in the process of reaccreditation (10-year). Our self-study has been submitted to CAMPEP (our accrediting body) and is under final review. While we await final confirmation, CAMPEP has administratively extended the program's accreditation to June 30, 2022.

## Admissions Committee



Wesley Bolch, PhD

David Gilland, PhD

Stephanie Leon, PhD

Bo Lu, PhD

Walter O'Dell, PhD

Bryan Schwarz, PhD



# Medical Physics Graduate Program Admissions – Fall 2021



## Orientation

The Fall 2021 orientation session for incoming Medical Physics students included a College of Medicine welcome by Dr Thomas Rowe, Associate Dean of Graduate Education; and College of Medicine overviews coordinated by Brett Looney and Amy Davis in the Office of Graduate Education.

A program overview by Dr Manuel Arreola, Program Director; and program introductions by our faculty and students – to include research lab overviews, was also included.



Tom Rowe, PhD



Manuel Arreola, PhD



Brett Looney



Amy Davis

## *Incoming MS Students*

Shorug Alshammari  
Natalia Carrasco-Rojas

Matthew Frain  
Mauricio Garrido  
Grey Haneberg  
Thomas Jakubowski  
Liana Mulet  
Aroon Pressram  
Wyatt Smithers  
Graham Stoddard

## *Incoming PhD Students*

Kati McCord  
Homa Mojabi  
TJ Moretti  
Naipy Perez  
James Perez-Sanchez  
Sidney Tazeh





# Medical Physics Graduate Program

## Admissions – Professional PhD Students

### Professional PhD Track

We are excited to announce the launch of the Professional PhD Track as part of our graduate program offerings. This new track, which is in addition to our standard full-time PhD offering, is for board-certified practicing physicists holding a MS degree.

Applicants accepted into this track will continue working and will be part-time students. A commitment from the applicant's employer (in agreement and support of program participation), is required.

Applicants to the Professional PhD Track should apply in the same manner as the standard full-time PhD program. However, the applicant's personal statement should clearly state that they are seeking Professional PhD Track admission. Professional PhD Track applicants are also required to submit a letter of support from their employer.



Amanda Jackson

### Amanda Jackson

Amanda is an American Board of Radiology (ABR) certified therapeutic radiological physicist employed at the Mayo Clinic in Jacksonville, where she leads the intraoperative radiation therapy (IORT) program and the Quality Improvement and Safety Committee. She is responsible for all regular clinical duties, which include SBRTs, TBIs, TSEs, brachytherapy, Gammaknife, I-131, and more. After 15 years of experience in a variety of clinical settings, she is now pursuing a PhD to advance her career in a new direction.



Naipy Perez

### Naipy Perez

For more than thirteen years, Naipy has been practicing at Innovative Cancer Institute in Miami, Florida. Her work experience includes special procedures such as intra, extracranial radiosurgery, and HDR Brachytherapy. She has been involved in the development and implementation of the Lattice Radiotherapy Technique for the treatment of voluminous and radioresistant tumors for over ten years. She has also participated as a speaker in numerous scientific meetings in the US and in South America.



Kati McCord

### Kati McCord

Kati has been a board-certified radiation therapy physicist for over ten years and is currently employed at Prisma Health in Greenville, South Carolina. Her facility is equipped with a variety of state-of-the art technologies, where she has the privilege of also performing specialty therapies such as SRS/SBRT, TBI, HDR brachytherapy, and LDR eye plaque brachytherapy. Her desire for continued growth and finding new ways to contribute to the field of medical physics drew her back to continue her education.



Sidney Tazeh

### Sidney Tazeh

Sidney currently works as a Cyberknife Physicist at the James A Haley VA Hospital in Tampa, Florida. Having been a full time board-certified clinical physicist for over twelve years, Sidney is seeking more in-depth research opportunities. He is specifically interested in developing more efficient and lower cost options for performing stereotactic radiosurgery and is also interested in the development and testing of new QA phantoms and processes. Sidney is a big fan of robotic radiosurgery!



# Medical Physics Graduate Program

## Admissions – Fall 2021 Incoming PhD Students



Our incoming  
PhD students  
span the globe  
... from  
Iran, Cuba,  
Cameroon, and  
the  
United States.

**Kati**  
McCord

*Advisor: Dr Bova*



Kati is an incoming Professional PhD Student who will focus on researching a novel method for tracking intrafraction movement during radiation therapy treatments utilizing an electromagnetic sensor system. Her specific aim would be to use this device to overcome current challenges with Stereotactic Radiosurgery motion monitoring. Kati obtained her MS in Biomedical Engineering from UF. She obtained her BS from the University of Vermont in Burlington.

**Homa**  
Mojabi

*Advisor: Dr Gilland*



Homa is an incoming PhD student whose interest in medical physics began as a young girl in Tehran, Iran, where she subsequently obtained a BS in Physics and a MS in Medical Physics at Shahid Beheshti University.

Continued interest in the field led Homa to Oregon Health and Science University in Portland, where she was awarded a MS in Medical Physics.

**TJ**  
Moretti

*Advisor: Dr Leon*



TJ recently graduated from the program with a MS. He obtained his BS in Physics from the Georgia Institute of Technology in Atlanta. His research focuses on nuclear medicine imaging modalities. His current project involves creation of an algorithm for fusion of planar gamma (scintigraphy) and fluoroscopy images. The goal of his project is to provide quantitative 2D fused images for the purposes of anatomic registration and dose verification in theranostic procedures.

**Naipy**  
Perez

*Advisor: Dr Arreola*



Naipy is an incoming Professional PhD Student. She has been practicing at Innovative Cancer Institute in Miami, Florida for more than 13 years and is a Diplomate of the American Board of Radiology in Therapeutic Medical Physics.

Naipy obtained her MS in Physics from Florida International University in Miami. She obtained her BS in Nuclear Physics from the Higher Institute of Nuclear Science and Technologies in Havana, Cuba.

**James**  
Perez-Sanchez

*Advisor: Dr Liu*



James recently graduated from the program with a MS. He obtained his BS in Physics from Florida International University in Miami.

His research focuses on applying machine learning techniques to therapeutic medical physics. James' interests include treatment planning, QA, and image-guided therapy.

**Sidney**  
Tazeh

*Advisor: Dr Arreola*



Sidney is an incoming Professional PhD Student. He has been a full-time board-certified clinical physicist for over 12 years and currently works at the James A Haley VA Hospital in Tampa Florida as a Cyberknife Physicist.

Sidney obtained his MS in Physics from San Diego State University in California. He obtained his BS in Physics from the University of Buea in Cameroon.



# Medical Physics Graduate Program

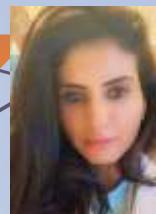
## Admissions – Fall 2021 Incoming MS Students



Our incoming MS  
students span  
the globe  
... from  
**Saudi Arabia,  
Mexico, Colombia,  
Guyana, and the  
United States**

### Shorug

Alshammari



Shorug is an incoming MS student from Riyadh, Saudi Arabia. She obtained her MS in Physics from the University of New Hampshire in Durham, and a BS in Physics from the University of Hail in Saudi Arabia.

### Natalia

Carrasco-Rojas



Natalia is an incoming MS student from Chihuahua, Mexico. She obtained her BS in Physics from the University of Texas at El Paso. Natalie became interested in the field after shadowing her aunt, who is a medical physicist. Nathalia enjoys listening to music, going out with friends and traveling. She also has a dog who she loves & misses very much. And coffee – she loves coffee!

### Matthew

FRAIN



Matthew is an incoming MS student from Oley, Pennsylvania. He obtained a BA in Chemistry and a BS in Neuroscience from Florida Atlantic University in Boca Raton, Florida. He is interested in the application of radiation for pediatric central nervous system conditions due to spinal cord injuries, such as heterotopic ossification. Matthew enjoys teaching, playing tennis, running, and reading. In his free time, he likes to exercise, try new foods & spend time with friends.

### Mauricio

Garrido



Mauricio is an incoming MS student from Bogota, Colombia. He obtained a BS in Physics and Electronics Engineering from the Universidad de los Andes in Bogota, Columbia. He obtained a MS & PhD in Physics from Ohio University in Athens. He is interested in developing a computational application that can predict organ motion during radiotherapy treatment based on real-time MRI/CT image acquisition. Mauricio enjoys traveling, learning languages, acting, doing martial arts & dancing. To keep sane, he meditates and practices yoga.

### Grey

Haneberg



Grey is an incoming MS student from Richmond, Virginia. He obtained a BS in Physics from the College of William & Mary in Williamsburg, Virginia. During his undergraduate studies, he became interested in proton therapy and worked on a research team using NMR spectroscopy to determine the local atomic structure of a peptide called piscidin, which has anti-cancer properties. Grey enjoys playing basketball, listening to music, cooking, and spending time with friends and family.

### Thomas

Jakubowski



Tom is an incoming student from Jacksonville, Florida. He obtained a BS in Nuclear Engineering and Engineering Physics from the University of Wisconsin in Madison, and a MS in Nuclear Engineering from The Ohio State University in Columbus. Tom is interested in using medical physics and information systems concepts to improve diagnostics related to CNS disorders. Originally from Wisconsin, Tom is the father of two adult children. He enjoys cycling, freshwater fishing, volunteering, gardening, and travelling with his wife.



## Medical Physics Graduate Program Admissions – Fall 2021 Incoming MS Students



Our incoming MS  
students span  
the globe  
... from  
**Saudi Arabia,  
Mexico, Colombia,  
Guyana, and the  
United States**

Liana

Mulet



Liana is an incoming MS student from Owatonna, Minnesota. She decided to escape the cold weather by attending UF, where she obtained a BS in Nuclear Engineering with a minor in Physics. Liana became interested in Medical Physics during a seminar course during her undergraduate studies. Her interest was solidified while participating in the UF Medical Physics Undergraduate internship program. Liana enjoys traveling, cooking and baking, reading, watching movies, and taking care of plants and animals.

Aroon

Pressram



Aroon is an incoming MS student from Mahaica, Guyana. He obtained a BS in Physics from Siena College in Loudonville, New York. During his undergraduate studies, he worked at a hospital where he realized his interest in medicine and physics. After becoming an intern at Ellis Medicine, he realized his passion for the field of Medical Physics. Aroon enjoys hanging out with friends and family, listening to music, and going to the gym.

Wyatt

Smither

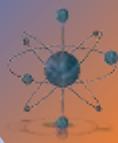


Wyatt is an incoming MS student from Fort Worth, Texas. He obtained his BS in Nuclear Engineering from Texas A&M University in College Station. He became interested in Medical Physics while conducting undergraduate research to model anthropomorphic phantoms with Monte Carlo computational simulations. Wyatt enjoys running, reading, and writing music.

Graham  
Stoddard



Graham is an incoming MS student from DeForest, Wisconsin. He obtained a BS in Space Physics from Embry-Riddle Aeronautical University in Prescott, Arizona; and a MS in Physics from Northern Illinois University in DeKalb, Illinois. His interest in Medical Physics was piqued while touring Hampton University Proton Therapy Institute as an undergraduate attending the US Particle Accelerator School. Graham enjoys playing games of all sorts, playing intramural sports (especially hockey and kickball), cooking, and spending time with his wife.



## Medical Physics Graduate Program Admissions

### Signing Day

UF Medical Physics' "Signing Days" are as exciting as those in collegiate sports!

The first Fall 2021 incoming MS student to sign their "Letter of Intent" was Aroon Pressram, who was surrounded by family and friends! Champagne, cake, and flowers were enjoyed by all!

Welcome to the Medical Physics Gator Nation, Aroon!



## Medical Physics Graduate Program Military Service

### United States Navy

The UF Medical Physics Graduate Program is honored to have Lieutenant Ronnie E Bolden II, as one of our current MS students. Lieutenant Bolden is a prior enlisted, active duty Naval Officer for the United States Navy. For over a decade, he operated nuclear reactors for the Navy. Now, as an officer, his focus is on radiation health. As a Radiation Health Officer (RHO), Lieutenant Bolden specializes in Radiation Health and Radiation Protection. In this capacity, he is responsible for shipboard personnel radiation exposure, to include ensuring his command is in compliance with all US Navy, federal, state, and local radiation protection standards:

- Ensures timely and accurate medical screening for potential radiation induced illnesses
- Oversees the personnel qualification and continuing training of naval personnel occupationally exposed to ionizing radiation
- Develops rigorous audits and assessment programs to identify problems and implement plans to minimize radiation exposure
- Manages the monitoring, documentation, and reporting of over 1000 personnel's radiation exposure
- Provides training to all personnel on various aspects of ionizing radiation exposure and safety

We are extremely proud of Lieutenant Bolden and his service to our country.





# Medical Physics Graduate Program Admissions



## Finding Medical Physics – What Students Need to Know

In an effort to assist applicants, Dr Izabella Barreto, Assistant Professor, collaborated with the Public Education Committee of the American Association of Physicists in Medicine (AAPM) to produce a video titled "[Finding Medical Physics – What Students Need to Know](#)", that answers commonly asked questions. This video is extremely beneficial to all Medical Physics applicants.

**0:00** Introduction

**0:59** What was your major of study in college?

**01:18** When did you develop an interest in Medical Physics?

**01:47** How did you discover Medical Physics as a career option?

**02:42** What steps did you take to pursue Medical Physics as a career?

**03:40** What do Medical Physicists do?

**04:31** Should you pursue a Masters or a PhD?

**05:43** Do I have to decide now which to get (Masters vs. PhD)?

**06:14** What is a typical workday like?

**07:18** Which do you enjoy the most (clinic, teaching, research)?

**07:53** Do you feel like you bring value to the hospital?

**08:22** Do you get to interact with patients?

**09:42** What advice do you have for a student who is interested in Medical Physics?

**11:06** Acknowledgements





# Medical Physics Graduate Program

## PhD Student Research Initiatives



Our current PhD students span the globe ... from Cuba, Bolivia, St Lucia, Iran, Taiwan, China, and the United States

**Camilo**

Correa



**Advisor: Dr Bolch**

Camilo's research focuses on developing tools to calculate dose to circulating lymphocytes during radiation therapy. Camilo has been developing a vessel generation algorithm to construct virtual vascular trees inside the main organs of the adult ICRP reference phantoms using hemodynamics and geometrics parameters of real human vasculature. The vascular models will be imported into Monte Carlo to simulate several radiation treatments.

**Nathalie**

Correa



**Advisor: Dr Arreola**

Nathalie is characterizing the x-ray beam of multiple CT scanners in order to perform a complete dosimetric analysis comparing the radiation dose between single-energy CT and dual-energy CT scans. The dosimetric analysis was performed by using optically stimulated luminescent dosimeters (OSLDs) to measure radiation dose in a post-mortem subject, developing a methodology to measure  $CTDI_{vol}$  for wide-beam CT scanners using dual-energy, and by calculating size-specific dose estimates in single-energy and dual-energy head CT scans.

**Sean**

Domal



**Advisor: Dr Bolch**

Sean's research focuses on the development and application of an extensive library of pregnant female hybrid computational phantoms. These phantoms will be utilized for computational dosimetry via Monte Carlo based particle transport methods and will better quantify fetal dose as a function of maternal size and fetal depth. Governed by CDC (Centers for Disease Control) NHANES (National Health and Nutrition Examination Survey) data, this work will yield the first pregnant female phantom library of its kind, allowing better phantom selection for computational dosimetry in a multitude of exposure scenarios.

**Megan**

Glassell



**Advisor: Dr Schwarz**

Megan's research focuses on developing a detailed peak skin dose calculator for utilization in interventional fluoroscopy. She is currently completing in-room measurements of different correction factors that will be incorporated into the detailed calculator. In the future she will be directly measuring patient skin dose using optically stimulated luminescent dosimeters (OSLDs) and comparing the results to the peak skin dose calculator to determine the accuracy.

**Anahita**

Heshmat



**Advisor: Dr Barreto**

Ana's research compares minimal iodine concentrations required to accurately display iodinated contrast material in iodine maps generated from Canon's Dual Energy CT (DECT) system (Aquilion ONE PRISM Edition) and Subtraction CT (SCT) technology (SureSubtraction). Also, quantitative accuracy of CT numbers in DECT's Virtual Non-Contrast (VNC) images were compared with true unenhanced images from SCT. The unique capabilities of DECT and SCT were evaluated separately. Ana aims to quantify the strengths and limitations of both systems and discuss clinical applicability of both.

**Amanda**

Jackson



**Advisor: Dr Johnson**

Amanda's research is focused on developing a mixed reality patient alignment system with Microsoft Hololens. A hologram of a patient's body will be used to align them with their radiation treatment isocenter. Other applications of holographic technology in medicine are being explored for future projects.

# Medical Physics Graduate Program

## PhD Student Research Initiatives



**Bonnie**

President

**Advisor: Dr Bolch**



**Zahra**

Razi

**Advisor: Dr Arreola**



**Colin**

Schaeffer

**Advisor: Dr Leon**



Bonnie's research focuses on creating microscale 3D models of kidney tissue for alpha radiopharmaceutical therapy. She is currently using H&E-stained histology slides to produce this model. She will then expand this work to include other organs.

Zahra is working on developing a quantitative MRI phantom for human brain tissue, which will be useful for sequence development, protocol validation, and quality control for advanced quantitative imaging sequences such as longitudinal and/or transverse (T1 & T2) relaxation times mapping. Quantitative MRI provides higher diagnostic accuracy than conventional images with weighted contrasts.

Colin's research focuses on machine learning applications in stroke imaging, particularly using Dual-Energy CT data and machine learning techniques to differentiate hemorrhages from residual iodine contrast. He is currently using a dataset of over 10,000 CT scans to build a model to identify and segment lesions in the brain. He will then build a statistical model to classify the lesion as either blood or iodine using Dual-Energy CT data.

**Ed**

Stafford

**Advisor: Dr Bova**



**Wen-Chih**

Tseng

**Advisor: Dr Lu**



**Jingxi**

Weng

**Advisor: Dr Samant**



Edward's research involves the combination of a photon-counting linear diode array and a higher-than-diagnostic energy fan-beam x-ray tube, to create a linear scanning imaging system. This, in combination with efforts from the Departments of Mechanical and Aerospace Engineering and Veterinary Medicine, has resulted in the joint development of a large animal robotic scanning system. The future of this project aims to incorporate tomographic reconstruction of data sets to expand what is currently possible in veterinary surgery.

Wen-Chih's research focuses on developing efficient dose calculation algorithms for radiotherapy. He previously implemented a polar-coordinate-based pencil-beam algorithm to expedite the dose computation for VMAT patient-specific QA, and is currently developing a deep learning base dose calculator to further speed up the three-dimensional patient-specific dose prediction using knowledge distillation technique. He will also work on a fast Monte Carlo dose calculation engine using quasi-random sequence.

Our current PhD students span the globe ... from Cuba, Bolivia, St Lucia, Iran, Taiwan, China, and the United States



# Medical Physics Graduate Program

## MS Student Research Initiatives



Our current MS  
students span the  
United States  
... from  
Pennsylvania,  
Tennessee, Kansas,  
Minnesota, Georgia,  
Florida,  
and Puerto Rico!

Jared

Baggett



Advisor: Dr Bolch

Jared's research focuses on the construction of a male pediatric polygon mesh-type computational phantom library. These phantoms will encompass models from early childhood to late teenage years with a wide variety of height and weight parameters that match CDC data based off the North American population. He hopes to use these phantoms to conduct Monte Carlo simulations to accurately estimate specific organ doses for pediatric patients undergoing both diagnostic and therapeutic procedures.

Jacob

Campbell



Advisor: Dr Lu

Jacob's research focuses on development and implementation of quasi Monte Carlo simulation algorithms. The goal is to improve simulation efficiency for radiation therapy QA while maintaining a confidence level close to that of Monte Carlo simulation. If successful, this could speed up Monte Carlo based QA methods at UF, and/or allow for Monte Carlo based QA in instances where it was prohibitively time consuming.

Lt Ronnie

Bolden



Advisor: Dr Bolch

Lieutenant Bolden's research focuses on the Microscale Tissue Model of the liver for the purpose of tracking alpha dosimetry. My team is a part of Dr. Bolch's ALRADS lab. The current goal is to build a 3D microscale model of the human liver that can be used to simulate alpha radiation absorption of the liver in PHITS and Monte Carlo simulations.

Bobby

Dawson



Advisor: Dr Bolch

Bobby's research focuses on constructing a large polygon mesh-based computational phantom library of adults and children. These highly detailed models of the human body with different combinations of age, sex, height, and weight, with body size parameters matched to CDC data specific to the North American population. These models present several advantages compared to older phantom types (voxel-based, etc) and will be used to perform a wide variety of Monte Carlo dosimetry studies, ranging from computed tomography to radiation therapy for cancer.

Florian

Buhlman



Advisor: Dr Leon

Florian is investigating optimization strategies for shielding verification in diagnostic x-ray rooms. His research is focused on finding a method to determine the thickness of lead in an existing wall more precisely than the current methodology in order to allow for lead characterization in cases where the lead thickness is unknown. In addition, he will create a standardized procedure to ensure consistency among surveyors.

Doug

Goddard



Advisor: Dr Bova

The College of Medicine, in conjunction with the Department of Mechanical and Aerospace engineering and the College of Veterinary Medicine, have undertaken the design and construction of a large animal robotic imaging and surgical guidance system. The system must interface to the College of Veterinary Medicine's radiology information system as well as the clinical image archive system. Doug's research will focus on creating an interface that not only ties these systems together, but one that also provides the robotic imager with the information it needs to optimize radiographic technique.

# Medical Physics Graduate Program

## MS Student Research Initiatives



Our current MS students span the United States ... from Pennsylvania, Tennessee, Kansas, Minnesota, Georgia, Florida, and Puerto Rico!

Rosette

Gonzalez

Advisor: Dr Johnson



Rosette's research is focused on developing a feature that will enable facial recognition of a patient with and without a mask that can eventually be incorporated into a mixed reality system for patient setup and alignment.

Ben

Heggie

Advisor: Dr Arreola



Ben is conducting research in advanced imaging in Computed Tomography with an emphasis on dosimetry and image quality.

Keaton

Reiners

Advisor: Dr Johnson



Keaton's research focuses on dosimetric comparisons between proton therapy and traditional x-ray therapy for lymphoma patients. He is utilizing the latest techniques in photon-based external beam therapy, such as intensity modulated radiation therapy (IMRT), and comparing planning outcomes against pencil beam scanning (PBS) proton therapy. Various models will be used to compare dose to target volumes, as well as dose to healthy tissue and nearby organs at risk.

Ryan

Stephenson

Advisor: Dr Bova



The Moonshot project, a collaboration between multiple departments, is constructing an X-ray imaging device capable of high contrast diagnostic scans of large animals. These imaging studies require the development of technologies that minimize image degrading scatter radiation from contaminating the detected signal. The device also needs to be capable of providing the most advanced diagnostic x-ray techniques. Ryan's project focuses on dual energy radiography as a means to enhance the signal difference between different tissues. The x-ray generator that was incorporated in the initial scanner design is not capable of rapid high energy voltage switching. To mimic this function repeat scans will be obtained at different voltages, images correlated (fused) and subtracted. The diagnostic enhancement in front and hind limbs, vertebral region and pelvic regions will be evaluated.



## Medical Physics Graduate Program 2021 HPS Fellowship



Bobby Dawson

Congratulations to Bobby Dawson, MS Student, on being selected as the recipient of a 2021-2022 Health Physics Society Fellowship for studies in health physics.

Bobby was awarded \$5,000 to support his academic work at the University of Florida. He was also provided with a travel grant of up to \$800 to attend the 2022 Health Physics Society Annual Meeting in July 2022 in Spokane, Washington.

Bobby Dawson



## Medical Physics Graduate Program 2021 HPS Fellowship



Sean Domal

Congratulations to Sean Domal, PhD Student, on being selected as the recipient of the 2021-2022 Health Physics Society Fellowship for studies in health physics.

Sean was awarded \$5,000 to support his academic work at the University of Florida. He was also provided with a travel grant of up to \$800 to attend the 2022 Health Physics Society Annual Meeting in July 2022 in Spokane, Washington.

Sean Domal



## Medical Physics Graduate Program 2021 ACR Scholarship



Zahra Razi

Congratulations to Zahra Razi, PhD Student, who was awarded a 2021 Medical Physics Graduate Student Scholarship by the American College of Radiology (ACR).

The ACR Medical Physics Graduate Student Scholarship provides graduate students in medical physics with funding to attend the ACR annual meeting.

Zahra Razi



## Medical Physics Graduate Program Internship



Colin Schaeffer

### Colin Schaeffer - FDA Internship

During the summers of 2020 & 2021, Colin Schaeffer, PhD Student, participated in the Oak Ridge Institute for Science and Education (ORISE) research program as an ORISE fellow in the Division of Imaging, Diagnostics, and Software Reliability (DIDSR) within the Center for Devices and Radiological Health (CDRH) at the US Food and Drug Administration (FDA).

Under the mentorship of Dr Bahaa Ghammraoui, Medical Imaging Research Scientist, and Dr Stephen Glick, Research Biomedical Engineer, Colin researched applications of photon-counting detectors in breast imaging, the results of which will be presented at the Society of Photo-Optical Instrumentation Engineers (SPIE) Medical Imaging 2022 conference in San Diego, California.

The internship strengthened Colin's abilities as a researcher by exposing him to unique research topics and methods outside of his research experience in the graduate program. He was able to learn from, and collaborate with, knowledgeable and passionate scientists in both government and academia. The internship also exposed him to many unique professional experiences, including sitting in on meetings and learning how the knowledge of a medical physicist translates to device regulation.

Overall, the program was a great experience that taught Colin skills that will not only make him a better medical physicist, but also a better scientist. Colin highly recommends the internship to any student studying medical physics. The program is open to new students throughout the year and is a great opportunity to hone skills as a researcher by working under the mentorship of world-class scientists. The program is also great for students who are interested in alternative careers in medical physics.



## Medical Physics Graduate Program Workshop



Mickey Schafer, PhD

### Writing Workshop

In an effort to assist our students with their writing skills, the program sponsored a special writing workshop by Dr Mickey Schafer, Senior Lecturer at the University's Center for Written and Oral Communications. The two-hour workshop, held in February 2021, focused on the basic structure of a research report and style recommendations.

The workshop was extremely beneficial for our students as they prepare final MS projects, PhD proposals/dissertations, and future abstracts, posters, publications, etc. We look forward to investigating future professional development courses for our students.



## Medical Physics Graduate Program Alumni Accolades



Emily Marshall, PhD



Les Hines

### ABR Oral Exam, Part 3

Congratulations to two of our graduates who recently passed the American Board of Radiology Oral Exam, Part 3: Dr Emily Marshall and Les Hines!

Dr Marshall (MS 2015/PhD 2017) is an Assistant Professor at the University of Chicago in Illinois.

Les Hines (MS 2014) is a Health Physicist in Environmental Health & Safety at the University of Florida in Gainesville.

We are so proud of our graduates!



## Medical Physics Graduate Program Alumni Accolades



Varun Sehgal, PhD

### AAPM Fellow

Congratulations to UF Medical Physics Graduate Program Alumnus Dr Varun Sehgal (MS 1998/PhD 2001), who was elected as a Fellow of the American Association of Physicists in Medicine (AAPM). The category of Fellow honors members who have distinguished themselves by their contributions in research, education, or leadership in the medical physics community. The award was presented at the 2020 Joint AAPM/Canadian Organization of Medical Physicists (COMP) Virtual Meeting in July 2020.

Dr Sehgal is a Clinical Professor in the Department of Radiation Oncology with the School of Medicine at the University of California, Irvine.



## Medical Physics Graduate Program Alumni Accolades



Jake Ricci

### MD/PhD Program

Congratulations to Jake Ricci, MS Graduate, who was recently accepted to the MD/PhD program at the University of Florida! Jake graduated from the UF Medical Physics Graduate Program in Summer 2020. Since that time, he has been working in a research position at Orlando Health focusing on the adaptive planning workflow for an MR-LINAC and scribing in the ER at Advent Health.



## PhD Supervisory Committees – Special Members



### Special Members

Special thanks to our colleagues who dedicate their time and expertise to our PhD students by serving as Special Members on their PhD Supervisory Committees. Their expertise and support is invaluable and greatly appreciated!



**Mark Artz, PhD**  
Assistant Professor  
University of Florida  
Gainesville, FL



**Reordan De Jesus, MD**  
Associate Professor  
University of Florida  
Gainesville, FL



**Chris Fox, MD**  
Senior Associate Consultant  
Mayo Clinic Florida  
Jacksonville, FL



**Robert Heithaus, MD**  
Assistant Professor  
University of Florida  
Gainesville, FL



**Robert Hobbs, PhD**  
Associate Professor  
Johns Hopkins University  
Baltimore, MD



**Nash Moawad, MD**  
Associate Professor  
University of Florida  
Gainesville, FL



**Patricia Moser, MD**  
Associate Professor  
University of Florida  
Gainesville, FL



**Harald Paganetti, PhD**  
Professor  
Massachusetts General Hospital  
Boston, MA



**Dhanashree Rajderkar, MD**  
Associate Professor  
University of Florida  
Gainesville, FL



**Jian Wu, PhD**  
Assistant Professor  
University of Florida  
Gainesville, FL



**Zhongwei Zhang, MD, PhD**  
Assistant Professor  
Washington University  
St Louis, MO

The  
expertise and  
support of  
special  
committee  
members is  
invaluable  
and greatly  
appreciated.



## PhD Supervisory Committees – External Members



### External Members

Special thanks to members of the UF Graduate Faculty who serve as External Members on the PhD Supervisory Committees of our PhD students. Their guidance and oversight is an essential component of the committee.



**John Aris, PhD**  
Associate Professor  
Department of Anatomy & Cell Biology



**Samsun Lampotang, PhD**  
Professor  
Department of Anesthesiology



**Scott Banks, PhD**  
Professor  
Department of Mechanical &  
Aerospace Engineering



**Hongcheng Liu, PhD**  
Assistant Professor  
Department of Industrial &  
Systems Engineering



**Alireza Entezari, PhD**  
Associate Professor  
Department of Computer &  
Information Science & Engineering



**William Mendenhall, MD**  
Professor  
Department of Radiation Oncology



**Ruogu Fang, PhD**  
Assistant Professor  
Department of Biomedical Engineering



**Carlos Rinaldi-Ramos, PhD**  
Professor  
Department of Chemical Engineering  
Department of Biomedical Engineering

The guidance  
and oversight  
of external  
committee  
members is an  
essential  
component of  
the supervisory  
committee.



# Medical Physics Graduate Program

## Dissertation Proposals



### PhD Proposals

After multiple semesters of research, the below PhD students proposed their projects through a formal presentation to their supervisory committees, which was also attended by faculty and students:



2019 - 2020  
Medical Physics Graduate Program  
Please join us for a special presentation by:  
**Karl Mund**  
Medical Physics PhD Student  
10:00<sup>AM</sup> Friday, April 17  
(Via Zoom)  
"The application of machine learning in radiotherapy quality assurance."  
Medical Sciences - College of Medicine - University of Florida



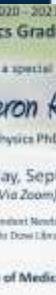
2019 - 2020  
Medical Physics Graduate Program  
Please join us for a special presentation by:  
**Trung Tran**  
Medical Physics PhD Student  
1:00<sup>PM</sup> Tuesday, August 18  
(Via Zoom)  
"A Morphometrically Variant Library of Anisotropic Mesh-type Computational Phantoms and Applications of voxel Phantoms in Radiology Dosimetry"  
Medical Sciences - College of Medicine - University of Florida



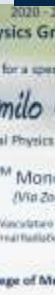
2019 - 2020  
Medical Physics Graduate Program  
Please join us for a special presentation by:  
**Catherine Olgun**  
Medical Physics PhD Student  
1:00<sup>PM</sup> Monday, June 1  
(Via Zoom)  
"Characterization and Optimization of a Single-Source Sequential Dual-Energy Computed Tomography System"  
Medical Sciences - College of Medicine - University of Florida



2020 - 2021  
Medical Physics Graduate Program  
Please join us for a special presentation by:  
**Cameron Kofler**  
Medical Physics PhD Student  
1:00<sup>PM</sup> Friday, September 25  
(Via Zoom)  
"The Development of an Age-Dependent Nonisotropic Mesh Phantom Library and a Pre-Computed Monte Carlo Dose Library for Connected Segmentation"  
Medical Sciences - College of Medicine - University of Florida



2020 - 2021  
Medical Physics Graduate Program  
Please join us for a special presentation by:  
**Camilo Correa**  
Medical Physics PhD Student  
12:00<sup>PM</sup> Monday, July 26  
(Via Zoom)  
"Development of Internal Radiotracers in Main Organs of Mice for Dose Assessment in External Radiation Therapy and Internal Radiation"  
Medical Sciences - College of Medicine - University of Florida



2020 - 2021  
Medical Physics Graduate Program  
Please join us for a special presentation by:  
**Sean Domal**  
Medical Physics PhD Student  
7:00<sup>PM</sup> Monday, July 26  
(Via Zoom)  
"Total Dosimetry of Fission Product Formulae with Applications in Imaging, Radiotherapy and Atom Bomb Studies"  
Medical Sciences - College of Medicine - University of Florida



2020 - 2021  
Medical Physics Graduate Program  
Please join us for a special presentation by:  
**Anahita Heshmat**  
Medical Physics PhD Student  
9:00<sup>AM</sup> Wednesday, August 18  
(C1-11, CommunCore)  
"Assessing Iodine Detection in Dual Energy CT and Subtraction CT"  
Medical Sciences - College of Medicine - University of Florida



2021 - 2022  
Medical Physics Graduate Program  
Please join us for a special presentation by:  
**Nathalie Correa**  
Medical Physics PhD Student  
8:00<sup>AM</sup> Wednesday, September 8  
(C1-15, CommunCore)  
"Direct Dose Measurements in Two Computed Tomography Scanners Comparing Single-Energy and Dual-Energy Scans"  
Medical Sciences - College of Medicine - University of Florida



# Medical Physics Graduate Program

## Dissertation Defenses



### PhD Defenses

As part of the final step in obtaining their PhD, the below students successfully defended their dissertations to their supervisory committees.



2019 - 2020  
Medical Physics Graduate Program

Please join us for a special presentation by:

*Nathan Quails*

Medical Physics PhD Candidate

3:30<sup>PM</sup> Thursday, May 28  
(Via Zoom)

"Investigating Patient Skin and Eye Lens Radiation Dose During Endovascular Neurosurgery Procedures."

Medical Sciences - College of Medicine - University of Florida



2019 - 2020  
Medical Physics Graduate Program

Please join us for a special presentation by:

*Justin Brown*

Medical Physics PhD Candidate

9:00<sup>AM</sup> Thursday, June 11  
(Via Zoom)

"Advancements in the Computation of Patient Organ Doses in Medical Radiation Exposures".

Medical Sciences - College of Medicine - University of Florida



2020 - 2021  
Medical Physics Graduate Program

Please join us for a special presentation by:

*Karl Mund*

Medical Physics PhD Candidate

9:30<sup>AM</sup> Tuesday, March 16  
(Via Zoom)

"The Application of Machine Learning in Radiotherapy Quality Assurance".

Medical Sciences - College of Medicine - University of Florida



2020 - 2021  
Medical Physics Graduate Program

Please join us for a special presentation by:

*Catherine Olguin*

Medical Physics PhD Candidate

1:00<sup>PM</sup> Wednesday, May 19  
(C1-17 & Via Zoom)

"Characterization and Optimization of a Single-Source Sequential Dual Energy Computed Tomography System".

Medical Sciences - College of Medicine - University of Florida



2020 - 2021  
Medical Physics Graduate Program

Please join us for a special presentation by:

*Trung Tran*

Medical Physics PhD Candidate

2:00<sup>PM</sup> Friday, June 4  
(Via Zoom)

"An Adult and Pediatric Computational Mesh Phantom Library and Pediatric Radiography Dosimetry for Radiation Epidemiology".

Medical Sciences - College of Medicine - University of Florida



2020 - 2021  
Medical Physics Graduate Program

Please join us for a special presentation by:

*Cameron Kofler*

Medical Physics PhD Candidate

1:00<sup>PM</sup> Wednesday, May 26  
(Via Zoom)

"The Development of a Newborn, Infant, and Toddler Mesh-Based Computational Phantom Library and a Pre-Computed Monte Carlo Dose Library for Computed Tomography".

Medical Sciences - College of Medicine - University of Florida



# Medical Physics Graduate Program

## PhD Graduations



### PhD Graduations

Congratulations to our PhD graduates!



Graduation

2019-2020  
Medical Physics Graduate Program

Please join us in congratulating:

**Nathan Quails**

Summer 2020 PhD Graduate

Subsequent to graduation,  
Nathan will start a Diagnostic Medical Physics Residency  
with The Ohio State University in Columbus, Ohio

Medical Sciences - College of Medicine - University of Florida

2020-2021

2019-2020  
Medical Physics Graduate Program

Please join us in congratulating:

**Justin Brown**

Summer 2020 PhD Graduate

Subsequent to graduation,  
Austin will start a Diagnostic Medical Physics Residency  
with the University of Florida in Gainesville, Florida

Medical Sciences - College of Medicine - University of Florida

2020-2021



Graduation

2020-2021  
Medical Physics Graduate Program

Please join us in congratulating:

**Karl Mund**

Spring 2021 PhD Graduate

Subsequent to graduation, Karl will begin a therapy residency  
with the Mayo Clinic in Scottsdale, Arizona

Medical Sciences - College of Medicine - University of Florida



Graduation

2020-2021  
Medical Physics Graduate Program

Please join us in congratulating:

**Catherine Olgun**

Summer 2021 PhD Graduate

Medical Sciences - College of Medicine - University of Florida



Graduation

2020-2021  
Medical Physics Graduate Program

Please join us in congratulating:

**Cameron Kofler**

Summer 2021 PhD Graduate

Subsequent to graduation, Cameron will start a  
Diagnostic Medical Physics Residency at the University of Chicago in Illinois!

Medical Sciences - College of Medicine - University of Florida

2020-2021  
Medical Physics Graduate Program

Please join us in congratulating:

**Trung Tran**

Summer 2021 PhD Graduate

Subsequent to graduation, Trung will start a  
Diagnostic Medical Physics Residency at Indiana University in Indianapolis

Medical Sciences - College of Medicine - University of Florida



# Medical Physics Graduate Program

## MS Presentations

### MS Presentations

Our MS students are required to engage in research, which culminates in a written report and a presentation to faculty and students.

|   |  |   |  |  |
|---|--|---|--|--|
| <p><b>MS Presentation</b></p> <p><b>2019 - 2020</b><br/>Medical Physics Graduate Program</p> <p>Please join us for a special presentation by:</p> <p><b>Colin Schaeffer</b><br/>Medical Physics MS Student</p> <p>4:00<sup>PM</sup> Tuesday, May 26<br/>(Via Zoom)</p> <p>"Accuracy of Effective Atomic Number and Electron Density Assessment in Dual-Energy CT: A Phantom Study"</p> <p>Medical Sciences - College of Medicine - University of Florida</p>                    | <p><b>MS Presentation</b></p> <p><b>2019 - 2020</b><br/>Medical Physics Graduate Program</p> <p>Please join us for a special presentation by:</p> <p><b>Megan Glassell</b><br/>Medical Physics MS Student</p> <p>9:00<sup>AM</sup> Monday, June 8<br/>(Via Zoom)</p> <p>"Developing a detailed peak skin dose calculator using in-mou measurements of table and pad attenuators"</p> <p>Medical Sciences - College of Medicine - University of Florida</p>   | <p><b>MS Presentation</b></p> <p><b>2019 - 2020</b><br/>Medical Physics Graduate Program</p> <p>Please join us for a special presentation by:</p> <p><b>Dan Clarielgio</b><br/>Medical Physics MS Student</p> <p>10:00<sup>AM</sup> Tuesday, June 30<br/>(Via Zoom)</p> <p>"A Proposal for Image Quality Analysis in Wide-Angle Multi-Detector Computed Tomography"</p> <p>Medical Sciences - College of Medicine - University of Florida</p> |  |  |
| <p><b>MS Presentation</b></p> <p><b>2019 - 2020</b><br/>Medical Physics Graduate Program</p> <p>Please join us for a special presentation by:</p> <p><b>Jake Ricci</b><br/>Medical Physics MS Student</p> <p>2:00<sup>PM</sup> Friday, July 10<br/>(Via Zoom)</p> <p>"Root Cause Analysis of the Patient-Specific Quality Assurance of a Pencil Beam Scanning System Using Finite-Size 3D Dosimeters"</p> <p>Medical Sciences - College of Medicine - University of Florida</p> | <p><b>MS Presentation</b></p> <p><b>2019 - 2020</b><br/>Medical Physics Graduate Program</p> <p>Please join us for a special presentation by:</p> <p><b>Bonnie President</b><br/>Medical Physics MS Student</p> <p>9:00<sup>AM</sup> Monday, July 27<br/>(Via Zoom)</p> <p>"Particle Transport in the Lacrimal Glands and Skin SubRegions in the ICRP Reference Phantom"</p> <p>Medical Sciences - College of Medicine - University of Florida</p>   | <p><b>MS Presentation</b></p> <p><b>2020 - 2021</b><br/>Medical Physics Graduate Program</p> <p>Please join us for a special presentation by:</p> <p><b>Orlando Trejo</b><br/>Medical Physics MS Student</p> <p>1:00<sup>PM</sup> Monday, June 7<br/>(Via Zoom)</p> <p>"Evaluating the PCA Lung Motion Model: A Feasibility Study on the MR Linac Technique"</p> <p>Medical Sciences - College of Medicine - University of Florida</p>        | <p><b>MS Presentation</b></p> <p><b>2020 - 2021</b><br/>Medical Physics Graduate Program</p> <p>Please join us for a special presentation by:</p> <p><b>Steven A Thompson</b><br/>Medical Physics MS Student</p> <p>10:00<sup>AM</sup> Friday, June 18<br/>(Via Zoom)</p> <p>"Proton Portal Imaging Using In-Vivo Generated Spallation Neutrons"</p> <p>Medical Sciences - College of Medicine - University of Florida</p> | <p><b>MS Presentation</b></p> <p><b>2020 - 2021</b><br/>Medical Physics Graduate Program</p> <p>Please join us for a special presentation by:</p> <p><b>TJ Moretti</b><br/>Medical Physics MS Student</p> <p>9:00<sup>AM</sup> Friday, June 25<br/>(CI-11, Commucare)</p> <p>"Automation in PET for Quality Assurance Testing and Protocol Analysis"</p> <p>Medical Sciences - College of Medicine - University of Florida</p> |
| <p><b>MS Presentation</b></p> <p><b>2020 - 2021</b><br/>Medical Physics Graduate Program</p> <p>Please join us for a special presentation by:</p> <p><b>Zachary Mullaghy</b><br/>Medical Physics MS Student</p> <p>1:00<sup>PM</sup> Wednesday, July 7<br/>(G-102, Radiology)</p> <p>"Building Towards Indication Specific Auto-Segmentation Protocols: Background and justification"</p> <p>Medical Sciences - College of Medicine - University of Florida</p>                 | <p><b>MS Presentation</b></p> <p><b>2020 - 2021</b><br/>Medical Physics Graduate Program</p> <p>Please join us for a special presentation by:</p> <p><b>James Perez-Sanchez</b><br/>Medical Physics MS Student</p> <p>2:00<sup>PM</sup> Friday, July 16<br/>(Room 1215 Davis Cancer Pavilion)</p> <p>"Ocular Summation Based Automatic Pixel-Dose Ver. Phantom Project with Non-Specific Hemispheric Corrections Factor"</p> <p>Medical Sciences - College of Medicine - University of Florida</p> |   |  |  |



# Medical Physics Graduate Program

## MS Graduations



### MS Graduations

Congratulations to our MS Graduates!



2019-2020  
Medical Physics Graduate Program

Please join us in congratulating:

**Megan Glassell**

Summer 2020 MS Graduate

Dissertation topic: Megan will begin PhD studies at the University of Florida in Gainesville, Florida.

Medical Sciences - College of Medicine - University of Florida

2019-2020  
Medical Physics Graduate Program

Please join us in congratulating:

**Ghayath Dakkouri**

Summer 2020 MS Graduate

Subsequent to graduation, Ghayath will pursue a residency

Medical Sciences - College of Medicine - University of Florida



2020-2021  
Medical Physics Graduate Program

Please join us in congratulating:

**James Perez-Sanchez**

Summer 2021 MS Graduate

Medical Sciences - College of Medicine - University of Florida



2019-2020  
Medical Physics Graduate Program

Please join us in congratulating:

**Dan Ciarleglio**

Summer 2020 MS Graduate

Dissertation topic: Dan will start a Residency in Medical Physics Radiation Oncology Associate in New York, New York.

Medical Sciences - College of Medicine - University of Florida

2019-2020  
Medical Physics Graduate Program

Please join us in congratulating:

**Jacob Ricci**

Summer 2020 MS Graduate

Subsequent to graduation, Jake will begin a Research Fellow on Orlando Health in Orlando, Florida and will then apply to medical school.

Medical Sciences - College of Medicine - University of Florida



2020-2021  
Medical Physics Graduate Program

Please join us in congratulating:

**Orlando Trejo**

Summer 2021 MS Graduate

Medical Sciences - College of Medicine - University of Florida



2019-2020  
Medical Physics Graduate Program

Please join us in congratulating:

**Bonnie President**

Summer 2020 MS Graduate

Dissertation topic: Bonnie will begin PhD studies at the University of Florida in Gainesville, Florida.

Medical Sciences - College of Medicine - University of Florida

2019-2020  
Medical Physics Graduate Program

Please join us in congratulating:

**Colin Schaeffer**

Summer 2020 MS Graduate

Subsequent to graduation, Colin will begin PhD studies at the University of Florida in Gainesville, Florida.

Medical Sciences - College of Medicine - University of Florida



2020-2021  
Medical Physics Graduate Program

Please join us in congratulating:

**TJ Moretti**

Summer 2021 MS Graduate

Medical Sciences - College of Medicine - University of Florida



2020-2021  
Medical Physics Graduate Program

Please join us in congratulating:

**Steven Thompson**

Summer 2021 MS Graduate

Medical Sciences - College of Medicine - University of Florida



2020-2021  
Medical Physics Graduate Program

Please join us in congratulating:

**Zachary Mullaghy**

Summer 2021 MS Graduate

Medical Sciences - College of Medicine - University of Florida



# Medical Physics Graduate Program Residencies

## Residency Match

Congratulations to our MS & PhD graduates who secured residency positions (imaging & therapy)!

|   |  |   |
|---|--|---|
| <p><b>Residency</b></p> <p><b>2019 - 2020</b><br/><b>Medical Physics Graduate Program</b></p> <p>Join us in congratulating:<br/><b>Justin Brown</b><br/>Medical Physics PhD Candidate</p> <p>who has accepted an Imaging Residency in Medical Physics at the University of Florida in Gainesville</p> <p>Medical Sciences - College of Medicine - University of Florida</p>                                   | <p><b>Residency</b></p> <p><b>2019 - 2020</b><br/><b>Medical Physics Graduate Program</b></p> <p>Join us in congratulating:<br/><b>Nathan Quails</b><br/>Medical Physics PhD Candidate</p> <p>who has accepted an Imaging Residency in Medical Physics at The Ohio State University in Columbus</p> <p>Medical Sciences - College of Medicine - University of Florida</p>      | <p><b>Residency</b></p> <p><b>2019 - 2020</b><br/><b>Medical Physics Graduate Program</b></p> <p>Join us in congratulating:<br/><b>Dan Ciarleglio</b><br/>Medical Physics MS Student</p> <p>who has accepted an Imaging Residency in Medical Physics at Petrone Associates in New York City</p> <p>Medical Sciences - College of Medicine - University of Florida</p>           |
| <p><b>Residency</b></p> <p><b>2020 - 2021</b><br/><b>Medical Physics Graduate Program</b></p> <p>Join us in congratulating:<br/><b>Andrew Spencer</b><br/>Medical Physics MS Graduate</p> <p>who has accepted an Imaging Residency in Medical Physics with Kaiser Permanente in Los Angeles, California</p> <p>Medical Sciences - College of Medicine - University of Florida</p>                             | <p><b>Residency</b></p> <p><b>2020 - 2021</b><br/><b>Medical Physics Graduate Program</b></p> <p>Join us in congratulating:<br/><b>Cameron Kofler</b><br/>Medical Physics PhD Candidate</p> <p>who has accepted an Imaging Residency in Medical Physics at the University of Chicago in Illinois</p> <p>Medical Sciences - College of Medicine - University of Florida</p>     | <p><b>Residency</b></p> <p><b>2020 - 2021</b><br/><b>Medical Physics Graduate Program</b></p> <p>Join us in congratulating:<br/><b>Karl Mund</b><br/>Medical Physics PhD Candidate</p> <p>who has accepted a Therapy Residency in Medical Physics at the Mayo Clinic in Scottsdale, Arizona</p> <p>Medical Sciences - College of Medicine - University of Florida</p>           |
| <p><b>Residency</b></p> <p><b>2020 - 2021</b><br/><b>Medical Physics Graduate Program</b></p> <p>Join us in congratulating:<br/><b>Han Liu</b><br/>Medical Physics MS Graduate</p> <p>who has accepted a Therapy Residency in Medical Physics at Virginia Commonwealth University in Richmond</p> <p>Medical Sciences - College of Medicine - University of Florida</p>                                       | <p><b>Residency</b></p> <p><b>2020 - 2021</b><br/><b>Medical Physics Graduate Program</b></p> <p>Join us in congratulating:<br/><b>Brandon Terracino</b><br/>Medical Physics MS Graduate</p> <p>who has accepted a Therapy Residency in Medical Physics with West Physics in Austin, Texas</p> <p>Medical Sciences - College of Medicine - University of Florida</p>           | <p><b>Residency</b></p> <p><b>2020 - 2021</b><br/><b>Medical Physics Graduate Program</b></p> <p>Join us in congratulating:<br/><b>Orlando Trejo</b><br/>Medical Physics MS Student</p> <p>who has accepted a Therapy Residency in Medical Physics at the University of Kansas in Overland Park</p> <p>Medical Sciences - College of Medicine - University of Florida</p>       |
| <p><b>Residency</b></p> <p><b>2021 - 2022</b><br/><b>Medical Physics Graduate Program</b></p> <p>Join us in congratulating:<br/><b>Lieutenant Ronnie Bolden</b><br/>Medical Physics MS Student</p> <p>who has accepted an Imaging Residency in Medical Physics with the US Navy at the Naval Medical Center in Portsmouth, Virginia</p> <p>Medical Sciences - College of Medicine - University of Florida</p> | <p><b>Residency</b></p> <p><b>2021 - 2022</b><br/><b>Medical Physics Graduate Program</b></p> <p>Join us in congratulating:<br/><b>Camilo Correa</b><br/>Medical Physics PhD Candidate</p> <p>who has accepted a Therapy Residency in Medical Physics at MD Anderson Cancer Center in Houston, Texas</p> <p>Medical Sciences - College of Medicine - University of Florida</p> | <p><b>Residency</b></p> <p><b>2021 - 2022</b><br/><b>Medical Physics Graduate Program</b></p> <p>Join us in congratulating:<br/><b>Sean Domal</b><br/>Medical Physics PhD Candidate</p> <p>who has accepted a Therapy Residency in Medical Physics at UT Southwestern Medical Center in Dallas, Texas</p> <p>Medical Sciences - College of Medicine - University of Florida</p> |



# Medical Physics Graduate Program Curriculum

## Course Restructuring

Throughout the year, the program's master's curriculum was refined and restructured. Courses were resequenced to provide a more streamlined structure to contribute to improved learning, and instructors were adjusted to more precisely align faculty with their specialties.

Modifications to course numbers and course titles are currently going through the required administrative process by the University to reflect the program's standing in the College of Medicine.

Additionally, three new courses were added to the curriculum: Survey in Medical Physics; Graduate Seminar in Medical Physics; and Research Methods in Medical Physics.

## Graduate Seminar in Medical Physics

The Graduate Seminar in Medical Physics will be offered every spring semester. This course will feature lectures by faculty, residents, alumni, and colleagues in other disciplines related to medical physics. These sessions will enable students to refine their presentation and communication skills.

## Survey in Medical Physics

Under the direction of Drs Leon and Schwarz, Survey in Medical Physics will be offered every summer semester. This course will prepare students for their future graduate studies and future medical physics career by informing them about career choices, work environment, residencies, board certification, and ethics and professionalism.

## Research Methods in Medical Physics

Under the direction of Dr Leon, Research Methods in Medical Physics was offered for the first time during the Fall 2021 semester. This course is intended to prepare students for their MS and PhD research in medical physics by introducing relevant concepts in statistics and experimental design. The course will also introduce essential concepts of Monte Carlo simulation and artificial intelligence, which are widely-used techniques in medical physics research.

| Semester             | Class   | Credits | Instructor           |
|----------------------|---|---------|----------------------|
| Fall                 | BME 6535 Radiological Physics, Measurements & Dosimetry | 3       | Dr Bolch             |
|                      | ENU 5626 Radiation Biology                              | 3       | Drs Barreto/Schwarz  |
|                      | ENU 6657 Diagnostic Physics I                           | 3       | Dr Rill              |
| Spring               | BME 6591 Therapy Physics I                              | 3       | Dr Lu                |
|                      | ENU 6652 Diagnostic Physics II                          | 3       | Drs Arredola/Barreto |
|                      | ENU 6659 Nuclear Medicine                               | 3       | Dr Gilland           |
| Summer               | BME 6590 Survey of Medical Physics                      | 1       | Drs Leon/Schwarz     |
|                      | BME 6533 Radiological Anatomy                           | 3       | Dr Schwarz           |
|                      | BME 6505 Diagnostic Physics III                         | 3       | Dr Arredola          |
| Fall                 | ENU 5658 Image Systems Analysis                         | 3       | Dr Gilland           |
|                      | BME 6592 Therapy Physics II                             | 3       | Therapy Faculty      |
|                      | GMS 5905 Research Methods in Medical Physics            | 3       | Dr Leon              |
| Spring               | ENU 6636 Medical Radiation Shielding & Protection       | 3       | Drs Leon/Johnson     |
|                      | ENU 6623 Radiation Dosimetry or Elective                | 3       | Dr Bolch/Other       |
|                      | GMS 5903 Seminar in Medical Physics                     | 1       | Dr Arredola          |
|                      | GMS 6910 Master's Research                              | 2       | Advisor              |
| <b>Total Credits</b> |   |         | <b>48</b>            |



# 2022 Course Schedules

## Course Schedules

Spring, Summer, and Fall 2022 class schedules are tentatively set:

| Spring 2022 Medical Physics Class Schedule  |   |  |   |        |
|---|---|--|---|--------|
| January 5, 2022 to April 29, 2022   |   |  |   |        |
| Monday  | Tuesday   | Wednesday  | Thursday  | Friday |
| 9:30AM - 10:20AM<br>BME 6506<br>Medical Radiation Shielding/Protection<br>Dr. Leon & Johnson<br>C2-31 | 7:30AM - 8:40AM<br>RT 113<br>Radiation Protection<br>Dr. Areola<br>Via Zoom                           |  | 7:30AM - 8:40AM<br>RT 113<br>Radiation Protection<br>Dr. Areola<br>Via Zoom                           |        |
| 10:30AM - 11:20AM<br>BME 6503<br>Diagnostic Physics II<br>Dr. Areola/Bonney/Silf<br>C2-31             | 9:30AM - 10:20AM<br>BME 6506<br>Medical Radiation Shielding/Protection<br>Dr. Leon & Johnson<br>C2-31 | 9:30AM - 10:20AM<br>BME 6502<br>Diagnostic Physics II<br>Dr. Areola/Bonney/Silf<br>C2-31 | 9:30AM - 10:20AM<br>BME 6506<br>Medical Radiation Shielding/Protection<br>Dr. Leon & Johnson<br>C2-31 |        |
|   | 11:30AM - 12:45PM<br>BME 6501<br>Nuclear Medicine<br>Dr. Gilford<br>C2-31                             |  | 12:30PM - 1:45PM<br>BME 6509<br>Nuclear Medicine<br>Dr. Gilford<br>C2-31                              |        |
| 1:30PM - 4:35PM<br>BME 6502<br>Therapy Physics I<br>Dr. Le<br>Radiation Oncology                      | 1:30PM - 2:45PM<br>BME 6503<br>Radiation Dosimetry<br>Dr. Bolch<br>C2-31                              | 3:00PM - 4:35PM<br>BME 6501<br>Therapy Physics I<br>Dr. Le<br>Radiation Oncology         | 3:00PM - 4:30PM<br>BME 6503<br>Graduate Seminar in Medical Physics<br>Dr. Areola<br>C2-31             |        |

| Fall 2022 Medical Physics Course Schedule |   |   |   |  |
|---|---|---|---|--|
| August 24, 2022 to December 16, 2022      |   |   |   |  |
| Monday                                    | Tuesday   | Wednesday   | Thursday  | Friday   |
|   | 9:45AM - 10:35AM<br>BME 6503<br>Diagnostic Physics I<br>Dr. Hill<br>C2-31                 | 9:45AM - 10:35AM<br>BME 6502<br>Diagnostic Physics I<br>Dr. Hill<br>C2-31                 | 9:45AM - 10:35AM<br>BME 6503<br>Diagnostic Physics I<br>Dr. Hill<br>C2-31                 |  |
|   | 10:45AM - 11:35AM<br>GMS 5905<br>Research Methods in Medical Physics<br>Dr. Leon<br>C2-31 | 10:45AM - 11:35AM<br>GMS 5905<br>Research Methods in Medical Physics<br>Dr. Leon<br>C2-31 | 10:45AM - 11:35AM<br>GMS 5905<br>Research Methods in Medical Physics<br>Dr. Leon<br>C2-31 |  |
|   | TBA<br>BME 6533<br>Radiological Physics<br>Dr. Bolch<br>TBA                               | 11:45AM - 1:00PM<br>BME 6504<br>Image Systems Analysis<br>Dr. Gilford<br>C2-31            | TBA<br>BME 6535<br>Radiological Physics<br>Dr. Bolch<br>TBA                               | 11:45AM - 1:00PM<br>BME 6504<br>Image Systems Analysis<br>Dr. Gilford<br>C2-31     |
|   |   | 1:30PM - 2:45PM<br>BME 6506<br>Radiation Biology<br>Dr. Barrett & Schwarz<br>C2-31        | 1:30PM - 2:45PM<br>BME 6506<br>Radiation Biology<br>Dr. Barrett & Schwarz<br>C2-31        | 1:30PM - 2:45PM<br>BME 6506<br>Radiation Biology<br>Dr. Barrett & Schwarz<br>C2-31 |
|   |   | 3:00PM - 4:35PM<br>BME 6502<br>Therapy II<br>Dr. Le<br>Rad Onc                            | 3:00PM - 4:35PM<br>BME 6502<br>Therapy II<br>Dr. Le<br>Rad Onc                            | 3:00PM - 4:35PM<br>BME 6502<br>Therapy II<br>Dr. Le<br>Rad Onc                     |

| Summer 2022 Medical Physics Class Schedule |         |  |   |        |
|--|---------|--|---|--------|
| May 9, 2022 to August 5, 2022              |         |  |   |        |
| Monday                                     | Tuesday | Wednesday  | Thursday  | Friday |
|  |         | 10:00AM - 11:40AM<br>BME 6505<br>Diagnostic Physics III<br>Dr. Areola<br>C2-31 |   |        |
|  |         |  | 10:00AM - 9:45AM<br>BME 6513<br>Radiological Anatomy<br>Dr. Schwarz<br>C2-31            |        |
|  |         |  | 10:00AM - 11:40AM<br>BME 6505<br>Diagnostic Physics III<br>Dr. Areola<br>C2-31          |        |
|  |         |  | 1:45PM - 2:50PM<br>GMS 5905<br>Survey of Medical Physics<br>Dr. Leon & Schwarz<br>C2-31 |        |
|  |         | 12:45PM - 3:00PM<br>BME 6533<br>Radiological Anatomy<br>Dr. Schwarz<br>C2-31   |   |        |



# Medical Physics Graduate Program Demo Labs



Lynn Rill, PhD



Alok Shankar, PhD



Justin Brown, PhD

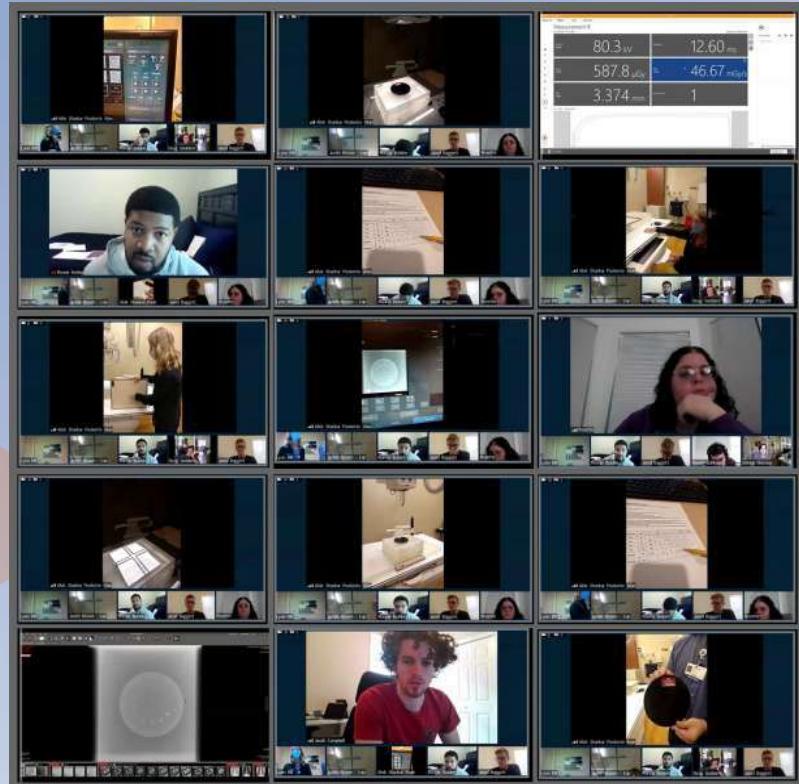
## Demo Labs

One of the favorite elements of our Diagnostic Physics I course (ENU 6657) with Dr Lynn Rill, Assistant Professor, has always been the hands-on demonstration labs, which take place in an x-ray room with phantoms, radiation meters, images, and graduate student participation.

In 2020, due to the ongoing pandemic, the course was taught entirely online. Instead of eliminating the labs, Dr Rill developed a way to hold them virtually! With the help of two of the physics residents (Drs Alok Shankar and Justin Brown), two laptops, a cell phone, and a zoom meeting room, the x-ray room was brought to the students!

During the virtual demo labs (6 total), students observed the experimental setup, made adjustments to techniques, made predictions about expected results, evaluated image quality, and filled in a lab worksheet at home.

Although all six demo labs were held virtually, with much success, we were excited to return to in-person labs in 2021. The labs are an excellent way to illustrate the imaging physics concepts that are taught in Diagnostic Physics I.





# Medical Physics Graduate Program

## Graduate Seminar in Medical Physics – Spring 2021



### Seminar Course – Spring 2021

The Graduate Seminar in Medical Physics was re-incorporated into the curriculum in Spring 2021. It will be offered in Spring and Fall semesters and will rotate between faculty and student presentations. Special thanks to all of our Spring 2021 presenters!

|   |  |   |   |
|---|--|---|---|
| <p>UF Medical Physics<br/><b>Seminar Course</b><br/>Spring 2021</p> <p>Dose Protraction for<br/>Stereotactic Radiosurgery Using<br/>Convolutional Neural Networks</p> <p><b>Adam Meier, PhD Candidate</b><br/>January 11, 2021</p>    | <p>UF Medical Physics<br/><b>Seminar Course</b><br/>Spring 2021</p> <p>The Development of a<br/>3D Commercial Monte Carlo<br/>Dose Library for<br/>Computer Tomography</p> <p><b>Jameson Miller, PhD Candidate</b><br/>January 18, 2021</p>  | <p>UF Medical Physics<br/><b>Seminar Course</b><br/>Spring 2021</p> <p>Characterization and Optimization<br/>of a Single-Source, Sequential Dual-Energy<br/>Computed Tomography System</p> <p><b>Catherine Ospina, PhD Candidate</b><br/>January 25, 2021</p>                       | <p>UF Medical Physics<br/><b>Seminar Course</b><br/>Spring 2021</p> <p>Proton Portal Imaging<br/>Using In-Vivo Generated<br/>Synchrotron Neutrons</p> <p><b>Steven Thompson, MS Student</b><br/>January 26, 2021</p>  |
| <p>UF Medical Physics<br/><b>Seminar Course</b><br/>Spring 2021</p> <p>PCA Model<br/>of Lung Motion</p> <p><b>Orlando Tavares, MS Student</b><br/>February 1, 2021</p>  | <p>UF Medical Physics<br/><b>Seminar Course</b><br/>Spring 2021</p> <p>Developing Intra-Organ<br/>Variability in the Adult<br/>Male/Female Mesh Reference<br/>Computational Phantoms</p> <p><b>Samuel Correa, PhD Student</b><br/>February 8, 2021</p>                                       | <p>UF Medical Physics<br/><b>Seminar Course</b><br/>Spring 2021</p> <p>Direct Dose Measurements on<br/>Two Dual-Energy CT Scanners</p> <p><b>Melanie Barnes, PhD Student</b><br/>February 15, 2021</p>  | <p>UF Medical Physics<br/><b>Seminar Course</b><br/>Spring 2021</p> <p>Computational Dosimetry of<br/>Pregnant Women with<br/>Applications in Computer<br/>Tomography and Radiotherapy</p> <p><b>Brian Dorell, PhD Student</b><br/>March 5, 2021</p>              |
| <p>UF Medical Physics<br/><b>Seminar Course</b><br/>Spring 2021</p> <p>Assessing Indiana Detection<br/>in Dual-Energy CT and Digital<br/>Subtraction Angiography</p> <p><b>Abdullah Almousawi, PhD Student</b><br/>March 12, 2021</p> | <p>UF Medical Physics<br/><b>Seminar Course</b><br/>Spring 2021</p> <p>Thermal Development<br/>for Characterization<br/>of Thermo-Dissipation in the Brain<br/>Using Quantitative<br/>Magnetic Resonance Imaging</p> <p><b>Juliana Facci, PhD Student</b><br/>March 19, 2021</p>             | <p>UF Medical Physics<br/><b>Seminar Course</b><br/>Spring 2021</p> <p>The Development and Characterization<br/>of a Linear Probe Array-Based<br/>Imaging Suite for a<br/>Large Animal Radiation Imaging System</p> <p><b>Edward Stachowiak, PhD Student</b><br/>March 26, 2021</p> | <p>UF Medical Physics<br/><b>Seminar Course</b><br/>Spring 2021</p> <p>Surface-Face Setup Variability<br/>and Anatomical Considerations –<br/>Distortion Effects<br/>and Mitigation Strategies</p> <p><b>Alexandra Jackson, PhD Student</b><br/>April 2, 2021</p> |
| <p>UF Medical Physics<br/><b>Seminar Course</b><br/>Spring 2021</p> <p>Polar Coordinate-Based<br/>Proton Beam<br/>Dose Calculation Algorithm for<br/>VMAT</p> <p><b>Yunfei Chen, PhD Student</b><br/>April 9, 2021</p>                | <p>UF Medical Physics<br/><b>Seminar Course</b><br/>Spring 2021</p> <p>Magnetic Resonance Imaging<br/>in the Brain</p> <p><b>Colby Murphy, MS Student</b><br/>April 16, 2021</p>   | <p>UF Medical Physics<br/><b>Seminar Course</b><br/>Spring 2021</p> <p>Automation in<br/>PET Quality Assurance:<br/>Implementing TG-126</p> <p><b>Christopher McNamee</b><br/>April 23, 2021</p>  | <p>UF Medical Physics<br/><b>Seminar Course</b><br/>Spring 2021</p> <p>Macro-to-Micro Dosimetry<br/>for<br/>Alpha Radiopharmaceutical<br/>Therapy</p> <p><b>Karen Pashley, MS Student</b><br/>April 30, 2021</p>  |
| <p>UF Medical Physics<br/><b>Seminar Course</b><br/>Spring 2021</p> <p>Developing a Detailed<br/>Peak Skin Dose Calculator<br/>Using In-Room<br/>Measurements</p> <p><b>Roger Haase, PhD Student</b><br/>April 13, 2021</p>           | <p>UF Medical Physics<br/><b>Seminar Course</b><br/>Spring 2021</p> <p>Development of a Clinician Simulation-<br/>Based Approach to Dose Verification<br/>Programs with Site-Specific<br/>Heterogeneity Corrections</p> <p><b>Jenny Petersen-Greenway, MS Student</b><br/>April 20, 2021</p> | <p>UF Medical Physics<br/><b>Seminar Course</b><br/>Spring 2021</p> <p>Tissue Characterization<br/>in Breast CT Using<br/>Photon Counting Detectors</p> <p><b>Kevin Schaeffer, PhD Student</b><br/>April 27, 2021</p>   |   |



# Medical Physics Graduate Program

## Graduate Seminar in Medical Physics – Fall 2021



### Seminar Course – Fall 2021

Special thanks to all of our Fall 2021 Graduate Seminar in Medical Physics presenters!





## Medical Physics Graduate Program Future Graduate Students



Dan Ciarleglio

### Dan Ciarleglio

Congratulations to Dan Ciarleglio, 2020 MS Graduate, and his wife Jessica on the birth of their beautiful baby girl!

Claudia Margaux Ciarleglio was born on Saturday, October 17, 2020.



Zahra Razi

### Zahra Razi

Congratulations to Zahra Razi, PhD Student, & her family on the birth of their beautiful baby boy!

Adrian Amiri was born at 8:38PM on August 8, 2021, weighing 8lbs, 12 ounces.



Catherine Olgunin, PhD

### Catherine Olgunin, PhD

Congratulations to Dr Catherine Olgunin, 2021 PhD Graduate, & Dr Edmond Olgunin, 2021 DIMPR Graduate, on the birth of their beautiful baby boy!

Leonardo Edmond Olgunin, who was born on Tuesday, September 21 in Boston, MA!



### Newborns

Congratulations to our graduate students who recently became new parents.

The future of medical physics shines bright!



## Medical Physics Graduate Program AAPM – 2020



Priscilla Butler, MS

### Professional Achievement Award

Congratulations to UF Medical Physics Alumna Priscilla Butler (MS 1976), who was awarded the 2020 Marvin M D Williams Professional Achievement Award by the American Association of Physicists in Medicine (AAPM). The Marvin M D Williams Professional Achievement Award recognizes an AAPM member for an eminent career in medical physics with an emphasis on clinical medical physics.

### American Association of Physicists in Medicine

UF Medical Physics students were well represented at the 2020 American Association of Physicists in Medicine annual meeting.

**Camilo Correa, PhD Student:** *"Lateral Scattering of Single Pencil Beam Spots in Proton Tissue Equivalent Materials"*

**Han Liu, MS Graduate:** *"Structural and Functional Magnetic Resonance Imaging (MRI) Super-Resolution Using Deep Convolutional Neural Network"*

**Catherine Olguin, PhD Graduate:** *"Dual Energy CT Protocol Optimization for Increased Blood Detectability of Virtual Non-Contrast Images in a Single Source Dual Energy CT System: A Phantom Study" & "The Effect of Reconstruction Filters On Dual Energy CT Images From a Single-Source Sequential System"*

**Nathan Quails, PhD Graduate:** *"Directly Measuring Peak Skin Dose during Fluoroscopically-Guided Neuroradiology Interventional Surgeries"*

**Colin Schaeffer, PhD Student:** *"Raw-Data Effective Atomic Number and Electron Density Assessment Accuracy: A Phantom Study" & "A Comparison of Noise Properties Between Statistical-Based Hybrid and Model-Base Iterative Reconstruction Algorithms in CT"*

**Wen-Chih Tseng, PhD Student:** *"A Continuous Dose Calculation Method for Volumetric Modulated Arc Therapy Using Pencil Beam Convolution in a Homogeneous Phantom"*



Camilo Correa

Han Liu

Catherine Olguin

Nathan Quails

Colin Schaeffer

Wen-Chih Tseng





## Medical Physics Graduate Program

# AAPM – 2021



### American Association of Physicists in Medicine

UF Medical Physics students were well represented at the 2021 American Association of Physicists in Medicine annual meeting.



Catherine Oguin

### Early-Career Investigator Symposium

Congratulations to Catherine Oguin, 2021 PhD Graduate, whose abstract titled "Comparison of CT image quality between AIDR 3D and FIRST iterative reconstruction algorithms: an assessment based on clinical images", was accepted by the American Association of Physicists in Medicine (AAPM) for their Early-Career Investigator Symposium competition at the 2021 Spring Clinical Meeting.



**Camilo Correa, PhD Student:** "Developing Internal Liver Vascular Models for Radiation Therapy Assessment of Dose to Circulating Lymphocytes"; "Computing Dose to Circulating Blood Cells Using Whole-Body Blood Flow Simulations"; "Liver 4D Blood Flow Model for Dose Calculation to Circulating Blood and Lymphocytes"; and "Fetal and maternal atomic bomb survivor dosimetry using kneeling and lying survivor postures of J45 pregnant female phantoms"

**Nathalie Correa, PhD Student:** "Half-Value Layer at Different Positions in Wide-Beam CT Scanners"

**Anahita Heshmat, PhD Student:** "Evaluating Motion Correction in a Commercial Subtraction CT Registration Algorithm"

**Colin Schaeffer, PhD Student:** "Artificial Intelligence in Medical Imaging" in a session of the same name, that he & Dr Stephanie Leon also moderated

**Steven Thompson, MS Graduate:** "Monte Carlo Modeling of Proton Portal Imaging System Using In Vivo Generated Neutrons"; and "A Feasibility Study of Proton Beam Dosimetry Using Cerenkov Radiation"

**Wen-Chih Tseng, PhD Student:** "Polar Coordinate Based Pencil Beam Dose Calculation Algorithm for VMAT"

**Jingxi Weng, PhD Student:** "Target Motion Tracking with LLE-Based Features Using Surface Imaging Model"



Camilo Correa

Nathalie Correa

Anahita Heshmat

Colin Schaeffer

Steven Thompson

Wen-Chih Tseng

Jingxi Weng



# Medical Physics Graduate Program FLAAPM



## FLAAPM Student Competition

UF Medical Physics students were well represented at the 2020 & 2021 Florida Chapter of the American Association of Physicists in Medicine meetings. Congratulations to our Student Presentation winners:

### Spring 2020

#### **1<sup>st</sup> place**

**Karl Mund, PhD Graduate:** "Dose prediction for patient-specific QA using a convolutional neural network"

#### **2<sup>nd</sup> place (tie)**

**Catherine Oguin, PhD Graduate:** "Reconstruction Kernel Effects on Iodine Maps from a Single-Source Dual Energy CT (DECT) System"

**Colin Schaeffer, PhD Student:** "Raw-Data Effective Atomic Number ( $Z_{\text{eff}}$ ) and Electron Density Accuracy Assessment: A Phantom Study"

#### **3<sup>rd</sup> place**

**Steven Thompson, MS Graduate:** "Modulation Curves for Verification of Limiting Spatial Resolution of a Proton Portal Imaging System"

### Spring 2021

#### **3<sup>rd</sup> place:**

**Nathalie Correa, PhD Candidate:** "Half-Value Layer at Different Positions in Wide-Beam CT Scanners"



## FLAAPM Meeting Participants

**Steven Thompson, PhD Graduate:** "Modulation Curves for Verification of Limiting Spatial Resolution of a Proton Portal Imaging System"

**Nathalie Correa, PhD Candidate:** "Broad-Beam MDCT Empirical Bow-Tie Filter Characterization"

**Ana Heshmat, PhD Candidate:** "Phantom comparing image quality in a computed tomography phantom with a commercially available harder x-ray beam spectra" & "A review of iodinated contrast material composition, concentration, and volumes in CT imaging"



# Medical Physics Graduate Program

## Student Research Highlights



### Research Highlights

MS & PhD students in the UF Medical Physics Graduate Program are actively involved in multiple research endeavors!

|   |  |  |
|---|--|--|
| <p><b>UF Medical Physics Research Highlight</b><br/>Nick Potts, PhD</p> <p>Error detection and classification in patient-specific IMRT QA with dual neural networks.</p> <p>Potts, Nicholas J.; Manci, Kelli; Aleywood, Jacqueline M.; Jonathan C.; Liu, Chiray; Yen, Saengvina. <i>The International Journal of Medical Physics Research and Practice</i>, 2020.</p>   | <p><b>UF Medical Physics Research Highlight</b><br/>Yingting Huo, PhD, FRCR</p> <p>Tumor phase recognition using cone-beam computed tomography projections and external surrogate information.</p> <p>Huo, Yingting; Lin, Guanghua; Liu, Difeng; Hong, Rui; Choi, Eunhee; Park, Jihyun; Joanne, Park; Li, Junshan G.; Li, Leilei. <i>The International Journal of Medical Physics Research and Practice</i>, 2018.</p> | <p><b>UF Medical Physics Research Highlight</b><br/>Asstia Hashmi, PhD</p> <p>Optimizing Superparamagnetic Iron Oxide Nanoparticle Synthesis and Peg Coating for Magnetic Particle Imaging Performance and Long Blood Circulation Half Life</p> <p>Li, Hui; Li, Hanfeng</p> <p>Presented at the American Institute of Chemical Engineers annual meeting in Boston, Massachusetts in November 2021.</p>                                 |
| <p><b>UF Medical Physics Research Highlight</b><br/>Camilo Correa, MS</p> <p>Dynamic Hepatic Blood Flow Model Shows Greater Impact of Total Treatment Time Than Integral Dose for Assessing Dose to Circulating Lymphocytes</p> <p>Ying, J.; Hsieh, J.; Murray, T.A.; Correa, C.; Hoffman, S.M.; Balooch, S.; O'Donnell, J.; Pugh, N. <i>International Journal of Radiation Oncology, Biology, Physics</i>, 2021, volume 101, issue 3, p861</p> | <p><b>UF Medical Physics Research Highlight</b><br/>Asstia Hashmi, PhD</p> <p>Fabrication of Inorganic Magnetic Nano-Composites for Biomedical Application</p> <p>Li, H.; Hashmi, A.</p> <p>Presented at the American Institute of Chemical Engineers annual meeting in Boston, Massachusetts in November 2021.</p>  | <p><b>UF Medical Physics Research Highlight</b><br/>Camilo Correa, MS</p> <p>HBDO-S: a computational tool to assess radiation dose to circulating blood cells during external beam radiotherapy based on whole-body blood flow simulations</p> <p>Ying, J.; Hsieh, J.; Murray, T.A.; Correa, C.; Hoffman, S.M.; Balooch, S.; O'Donnell, J.; Pugh, N. <i>Physics in Medicine and Biology</i>, 2021.</p>                                 |
| <p><b>UF Medical Physics Research Highlight</b><br/>Asstia Hashmi, MS</p> <p>Preparation and Evaluation of Hafnium Oxide Nanoparticle CT Contrast Agents</p> <p>Li, H.; Hashmi, A.</p> <p>Presented at the American Institute of Chemical Engineers annual meeting in Boston, Massachusetts in November 2021.</p>   | <p><b>UF Medical Physics Research Highlight</b><br/>Camilo Correa, MS</p> <p>Models of Internal Liver Vasculature within the Mesh-Type ICRP Adult Reference Phantom to Support Internal Dosimetry in Radiopharmaceutical Therapy</p> <p>Correa, C.; Hoffman, S.M.; Balooch, S.; O'Donnell, J.; Pugh, N. <i>European Association of Nuclear Medicine 2019 Congress</i>, 2019.</p>                                       | <p><b>UF Medical Physics Research Highlight</b><br/>Eric Schaeffer, PhD</p> <p>Theoretical comparison and optimization of CdTe and GaAs photon-counting detectors for contrast-enhanced spectral mammography.</p> <p>Ying, J.; Hsieh, J.; Murray, T.A.; Correa, C.; Hoffman, S.M.; Balooch, S.; O'Donnell, J.; Pugh, N. <i>Physics of Medical Imaging Conference at the 2019 Medical Imaging Symposium in San Diego, CA</i>, 2019.</p> |
| <p><b>UF Medical Physics Research Highlight</b><br/>Jana Meier</p> <p>Protocol for the measurement of the absorbed dose rate to water for a planar 32P emitting brachytherapy source: A multi-institutional validation</p> <p>J. Meier; J. Kassner; G.N. Corlett; A. Denner; T. Mousavi; J. Pursey; J. Deibel</p> <p><i>Brachytherapy</i>, October 2021</p>   | <p><b>UF Medical Physics Research Highlight</b><br/>Celso Paulin, PhD, FRCR</p> <p>Pregnant female computational dosimetry for the atomic bomb survivors of Hiroshima and Nagasaki</p> <p>C. Paulin; C. Corlett; C. Denner</p> <p><i>Presented at the Radiation Research Society's 67th Annual Meeting</i>, 2021.</p>  | <p><b>UF Medical Physics Research Highlight</b><br/>Camilo Correa, MS</p> <p>Mesh-based intra-organ vascular models for assessing radiation dose to circulating lymphocytes following cancer radiotherapy</p> <p>Ying, J.; Hsieh, J.; Murray, T.A.; Correa, C.; Hoffman, S.M.</p> <p>Presented at the State of Texas Chapter of the Health Physics Society Spring Meeting, 2021.</p>   |



**Marlene McKetty, PhD**



**Priscilla Butler, MS**



**Homa Mojabi, MS**

## Assistantship for Women

The UF Medical Physics Graduate Program is excited to announce that we have established the **McKetty/Butler Diagnostic Medical Physics Assistantship for Women** in honor of our esteemed alumni: **Marlene H P McKetty, PhD** and **Priscilla F Butler, MS**. Dr McKetty graduated from the program with a MS in 1975 and a PhD in 1978. She most recently served as the Chief Physicist and Assistant Professor at Howard University Hospital in Washington, DC, before her subsequent retirement. Priscilla “Penny” Butler graduated from the program with a MS in 1976. She most recently served as the Senior Director and Medical Physicist at the American College of Radiology in Reston, Virginia, before her subsequent retirement. In addition to their stellar educational, clinical, and research contributions to the field of Diagnostic Medical Physics, Dr McKetty and Ms Butler have paved the way for women, including women of color, in Medical Physics.

The McKetty/Butler Diagnostic Medical Physics Assistantship for Women will be an annual assistantship that is awarded to an incoming female PhD student. In 2021, the assistantship was awarded to Homa Mojabi, who began the program in Fall 2021. Homa was awarded a BS in Physics from Shahid Beheshti University and a MS in Medical Physics from Tehran University, both in Tehran, Iran. She completed a MS in Medical Physics from Oregon Health and Science University (OHSU) in Portland in July 2021. At OHSU, Homa (who was trained by our outstanding alumni Drs Griglock, DeWees and Mench) participated in research that involved the assessment of image quality parameters of a PET scanner with 3 rings in comparison to a PET scanner with 5 rings. Please join us in welcoming Homa to the Medical Physics Gator Nation!

During these unprecedented times, we strive to make positive changes in our program, and in the lives of our students, residents, and faculty. The establishment of the McKetty/Butler Diagnostic Medical Physics Assistantship for Women is one of those changes. We look forward to continuing our support of Women in Science, Technology, Engineering, and Mathematics (STEM).



# Marlene H P McKetty, PhD

## Chief Physicist & Assistant Professor (Retired) Howard University Hospital



### Graduate Student Alumni Spotlight

Dr Marlene H P McKetty graduated from the UF Medical Physics Graduate Program with a MS in 1975 and a PhD in 1978. Dr McKetty's legacy is unparalleled. Her accomplishments raised the bar for all medical physicists and serve as a framework for all who follow in her footsteps.

Dr McKetty attended St Hugh's High School in Kingston, Jamaica, and then the University of the West Indies, from which she earned her BS degree in Zoology and Chemistry. Subsequent to graduation, she moved to the United States and attended Mt Sinai School of Radiotherapeutic Technology in New York City, where she became a Registered Radiation Therapy Technologist. She concurrently took Physics and calculus courses at Hunter College, which allowed her to meet the requirements to be admitted into the graduate program in Nuclear Engineering Sciences in the College of Engineering at the University of Florida in Gainesville, where she studied Medical Radiation Physics.

When Dr McKetty was admitted into the graduate program at UF, she was awarded financial assistance in the form of a graduate assistantship from the Nuclear Engineering Sciences Department. In her first semester, she did research with a professor working on dating of artifacts using radioactivity. Her demonstration of keen interest in the treatment of cancer patients led to her being selected as one of two graduate students to work half-time with the staff clinical medical physicist in the Radiation Therapy Division of the Radiology Department. This opportunity provided her with invaluable practical experience in training to be a clinical physicist.

During her graduate studies, Dr McKetty received several awards. This includes an academic award from the Society of Black Students in Engineering (SBSE); a graduate student award from the Nuclear and Plasma Sciences Society of the Institute of Electrical and Electronic Engineering (IEEE); and the Graduate School Fellowship for Women in Non-Traditional Fields. She also obtained a dissertation year award from the National Fellowships Fund.

After graduate school, Dr McKetty obtained a position as a Medical Physicist in the Radiation Therapy Department at Mt Sinai Hospital, where she worked for two and a half years. She then accepted a position at Howard University Hospital in Washington, DC, as a Medical Physicist in Diagnostic Radiology and Nuclear Medicine Physics, with an appointment as an Assistant Professor in the College of Medicine.

Although her clinical training was concentrated in Radiation Therapy Physics, she had the didactic and laboratory training to work in these

other areas of Medical Physics. Despite limited clinical experience in those fields, she was diligent about learning those areas of medical physics and eventually spent the majority of her career working in Diagnostic Imaging and Nuclear Medicine physics. After a few years as a member, she was also appointed as Chair of the Howard University Radiation Safety Committee, where her duties and responsibilities included providing leadership and technical expertise for the committee, supervision of the Radiation Safety Officer, technical and administrative staff of the Radiation Safety Office, and advising senior management of resources needed and regulatory mandates and requirements for an effective Radiation Safety Program. The Radiation Safety Committee ensured that all sources of ionizing radiation at Howard University and Howard University Hospital were used safely and in a manner that complied with applicable Federal and District of Columbia regulations. As a clinical physicist, some of the responsibilities included: calibration of x-ray equipment used for diagnostic purposes and radioisotope assaying equipment; teaching radiation physics to medical residents and students, nurses, and technology students and physicians in other disciplines; establishment and supervision of a quality assurance program; and collaboration with radiologists, technologists, and service engineers to obtain high quality images with minimal radiation dose to patients.

Dr McKetty earned her certification from the American Board of Radiology (ABR) in Therapeutic Radiological Physics, and as her area of work concentration changed, also became certified by the ABR in Diagnostic Radiological Physics, thus becoming a diplomate in both areas of Medical Physics. She also became board certified by the American Board of Medical Physics in Diagnostic Imaging Physics. Dr McKetty was also awarded a fellowship in the American Association of Physicists in Medicine (AAPM).

During her career, Dr McKetty was a member of several professional and scientific organizations and had leadership roles in many of them, some at the board and some at the committee level. She is a member of the AAPM, Health Physics Society (HPS), American College of Radiology (ACR), Commission on Accreditation of Medical Physics Programs (CAMPEP), among others. Some of the committees on which she served were related to education and training of physicists, radiologists, and

technologists; mammography physics; government and public relations; and minority recruitment of physicists into the profession. She was elected and served as a Board Member at Large for the AAPM, served on the boards of the local chapters of the HPS in New York and Baltimore/Washington, and was nominated and appointed to the board of CAMPEP.

Dr McKetty's service activities included serving as a reviewer of mammography images and programs for the American College of Radiology Mammography Accreditation Program (ACR-MAP), and serving on the Food and Drug Administration (FDA) Technical Electronic Products Radiation Safety Standards Committee (TEPRSSC). She also served the American Board of Radiology (ABR) as an oral examiner for candidates taking the examination to become certified by the ABR in diagnostic imaging physics. Although she is now retired from clinical medical physics activities, she continues to serve on a subcommittee of CAMPEP whose function is to accredit Medical Physics training programs and medical physics residency programs.

Dr McKetty is the epitome of a true trailblazer. She paved the way for future generations and continues to leave her mark on the field of medical physics. Despite her retirement, Dr McKetty's light continues to shine bright.

As one of our most esteemed alumni, she personifies the good of the Gator Nation and exemplifies the medical physics profession!



## Marlene McKetty, PhD

# Q&A with Dr McKetty



### Q. How did the University of Florida prepare you for a career in Medical Physics?

A. The prescribed curriculum gave me the didactic training that I could apply to different areas of Medical Physics. As students, we had academic training in Radiation Physics and Dosimetry, Environmental Engineering, Health Physics, Radiation Biology, Nuclear Reactor Physics, & Physics of Nuclear Medicine – many of which had laboratory components. We also had Computer Science and Statistics. The core courses provided enough basic information that would allow one to pursue any of the major branches of medical physics, namely Therapeutic Radiation Physics, Diagnostic Radiation Physics, or Nuclear Medicine Physics. However, the amount of clinical training was limited.

Prior to starting the graduate program, my plan and career goal was to be a physicist in a radiation therapy department. I was fortunate that after my first quarter at UF, the Radiation Therapy Department at Shands hired two graduate students to work 8 hours per day in the radiation physics section providing dosimetry support and learning clinical physics under the tutelage of the clinical physicist. I was chosen as one of the graduate students. Thus, for my assistantship, I was being trained as a clinical physicist. With this experience, I was exposed to much of the training that is now provided in a residency program. This experience was invaluable and very beneficial in my first position as a clinical physicist in a radiation therapy department after completing graduate school. I had enough confidence in my basic training in medical physics, and my ability to learn what I needed, so that I was able to make the transition to diagnostic medical physics where I became responsible for diagnostic medical physics, nuclear medicine physics, and radiation safety.

### Q. How did you decide between therapeutic or diagnostic medical physics?

A. As a teenager in school, I aspired to work in the sciences and work with some aspect of cancer study. After an undergraduate degree in Zoology and Chemistry, I was introduced to the field of radiation therapy and the physics of radiation therapy. I completed additional courses in physics and calculus which were not a part of my study for my undergraduate degree and applied to graduate medical physics programs, having decided that my career goal was to be a medical physicist in a radiation therapy setting. After graduating, I worked as a clinical physicist, which included teaching radiation physics to radiation oncology residents and became involved in the local AAPM chapter (RAMPS) and the local Health Physics Society. I wanted to learn more about diagnostic medical physics. My interest was especially piqued when I became chair of the Raphex committee and had to convene a group of medical physicists in New York to prepare the examination for both Radiation Oncology and Diagnostic Radiology residents. The new chairman of the Department of Radiology at Howard University Hospital was interested in hiring a physicist for his department. He heard about me from one of the members of my Raphex committee and contacted me to apply for the position. I applied and got the position. My plan was to work in diagnostic physics for a short time and then return to therapeutic physics. I became ABR certified in Therapeutic Radiation physics and then a few years later became certified by the ABR in Diagnostic Imaging Physics. I ended up spending most of my career in Diagnostic Physics.

### Q. What do you know now that you wish you had known as a graduate student?

A. I know that one can pivot and change your focus and plans and still be successful, provided you put in the necessary work.

### Q. What advice would you give to a graduate student in Medical Physics?

A. Be inquisitive. Develop good organizational skills. Learn from all sources in your environment, not only those you think are in authority.

### Q. What was the most fulfilling aspect of your career?

A. It was being appointed Chair of the Radiation Safety Committee of Howard University Hospital - supervising the operation of the Radiation Safety Office, providing advice and recommendations to senior management of the university, and working in conjunction with the risk committees, namely the Institutional Review Board (IRB), the Institutional Animal Use and Care Committee (IACUC), the Hospital Safety Committee, and the Disaster Preparedness Committee. All these activities were performed while maintaining all the activities of a medical physicist in the Radiology department and Nuclear Medicine division.

### Q. Why would you encourage an undergraduate student to go into Medical Physics?

A. Medical Physics provides a satisfying career which requires varied skill sets. While knowledge of the relevant sciences is important, one must have good communication skills to communicate not only with your peers but with physicians, varied health care workers, manufacturers, patients, medical and technology students, and hospital administrators, among others. It also allows a scientist to use the knowledge of science in a very practical manner and in a field that is constantly changing.



# Priscilla F Butler, MS

Senior Director of Breast Imaging Accreditation Programs (Retired)  
American College of Radiology



## Graduate Student Alumni Spotlight

Priscilla Butler graduated from the UF Medical Physics Graduate Program in 1976. Although recently retired, her impact on the Medical Physics profession will be felt for generations to come.

Originally intent on becoming a meteorologist, Ms Butler started her undergraduate studies at Lowell Technological Institute in Lowell, Massachusetts (now part of the University of Massachusetts). After joining the program and learning of the potential lack of job opportunities, she became aware of a different undergraduate opportunity in which radiation safety technicians were trained and, if they advanced into the Radiological Sciences Health Physics Program, their tuition was paid for by the program. Out of the thirty applicants who applied, Ms Butler was one of two women to complete the program (during which she also worked as a Health Physics Technician for three summers).

After graduating with her BS in Radiological Health Physics, Ms Butler earned a MS in Medical Physics from the University of Florida. Go Gators!

Subsequent to graduation, Ms Butler worked at the US Food and Drug Administration (FDA). In this capacity, she worked on the BENT program: Breast Exposure: Nationwide Trends. During her time at the FDA, she also spent a year working at the National Naval Medical Center in Bethesda, Maryland. As part of a FDA sponsored program, she worked with engineers to expand knowledge of shielding and equipment installation. She was later recruited by George Washington University in the District of Columbia, where she worked as a medical physicist teaching residents and technology students, and providing clinical physics support for the Department of Radiology.

In 1998, Ms Butler was recruited to join the American College of Radiology (ACR), where she worked until her official retirement in 2018. At the ACR, she began as the Director of Breast Imaging Accreditation Programs, becoming Senior Director in 2001.



While working on the ACR's Mammography Accreditation Program (MAP), she helped standardize policies and procedures. This work clarified the image quality and quality assurance/quality control needed for excellent mammography across facilities. Her work ensured that quality parameters were understood, especially taking into account radiation dose.

Throughout her career, Ms Butler authored/co-authored many key early publications on image quality and dose. This includes the 1999 ACR Mammography Quality Control Manual, the 2016 & 2018 ACR Digital Mammography Quality Control Manuals, and the 2007 ACR White Paper on Radiation Dose in Medicine. Her involvement also resulted in the ACR's support and expansion of the Image Gently and Image Wisely programs.

Ms Butler's work also led to the improvement and more widespread support of BI-RADS, the Breast Imaging Reporting and Data System.

In 2020, Ms Butler was awarded the American College of Radiology Gold Medal, the ACR's highest honor. She is only the 10<sup>th</sup> woman to receive this recognition, the first being Madame Marie Curie in 1931. In addition, she was awarded the American Association of Physicists in Medicine (AAPM) Marvin M D Williams Professional Achievement Award in 2020; was named an Honorary Fellow of the Society of Breast Imaging in 2013; and received the Image Gently Butterfly Award in 2018.

Ms Butler is a fellow of the ACR and the AAPM. She continues to serve as an Adjunct Professor of Radiology at George Washington University School of Medicine and Health Care Sciences.

In her retirement, Ms Butler is enjoying driving her 2019 yellow Corvette Stingray (a retirement gift to herself) and traveling with her husband Allen.

It is impossible to adequately recognize Ms Butler's significant contributions to the field of Medical Physics. We are truly in awe of her legacy; admire her perseverance; are humbled by her dedication; are fortunate to call her a colleague and a friend; and are honored to say that she is a graduate of the UF Medical Physics Graduate Program.

As one of our most esteemed alumni, we hope that she serves as the inspiration for future students and that her light guides the way for continued advancements in Medical Physics, and specifically, Breast Imaging.



## Penny Butler, MS

# Q&A with Penny Butler



**Q. How did the University of Florida prepare you for a career in Medical Physics?**

A. The University of Florida had a great faculty (who remembers Walter Mauderli, DSc, Larry Fitzgerald, PhD, Valerie Brookeman, PhD, Gen Roessler, PhD?) who were willing to spend time with you to reinforce the basics and encourage thought and exploration in our chosen fields. They also cared about you as people and colleagues. The program attracted outstanding students from all over the country and also the world. Interacting with these folks in class, during research and after hours truly enhances one's education. These relationships continue at meetings such as AAPM and help you in networking. Bill Properzio, PhD, a fellow grad student, recruited me to the FDA for my first job.

**Q. What do you know now that you wish you had known as a graduate student?**

A. There are many opportunities for medical physics graduates in not only the clinical arena, but also government, industry and research. This is good. However, I did not fully appreciate the need for a firm clinical foundation in whatever you do until I worked at my first position at the FDA. Fortunately, I had the opportunity to take a 1-year "sabbatical" (there were no residencies at the time) to work in diagnostic radiology at the Bethesda Naval Hospital in the early 1980s. This clinical experience provided a better perspective on my contributions on health care while at the FDA.

**Q. How did you decide between therapeutic or diagnostic medical physics?**

A. I spent most of my undergraduate and graduate education working with colleagues who were destined for health physics in the nuclear industry. I thought I could make a greater impact on reducing dose to the average American by specializing in diagnostic medical physics. From that decision, the opportunities just exploded. It was an era when medical imaging saw the birth and maturity of CT, MRI, ultrasound and digital. So exciting!

**Q. What advice would you give to a graduate student in Medical Physics?**

A. Study hard and learn what they teach you in graduate school. But, don't forget that being a medical physicist is being part of a medical community consisting of physicians, nurses, technologists, aides, receptionists, administrators, patients and their families. This is challenging but extremely rewarding. Practice communicating with non-physicists about your field. Remember to keep it short...you will lose them if you don't. Don't ignore opportunities to serve on committees and take on leadership positions, especially in multispecialty areas. And, I know this is hard in today's COVID world, but BE SEEN. It is important for your job and your career that your colleagues and administrators know you are contributing and its easiest for them to know that if they can see you at work (eg, check in with CT staff before they leave for the day to see if they have had any particular problems with the scanner before you start your night-long testing).

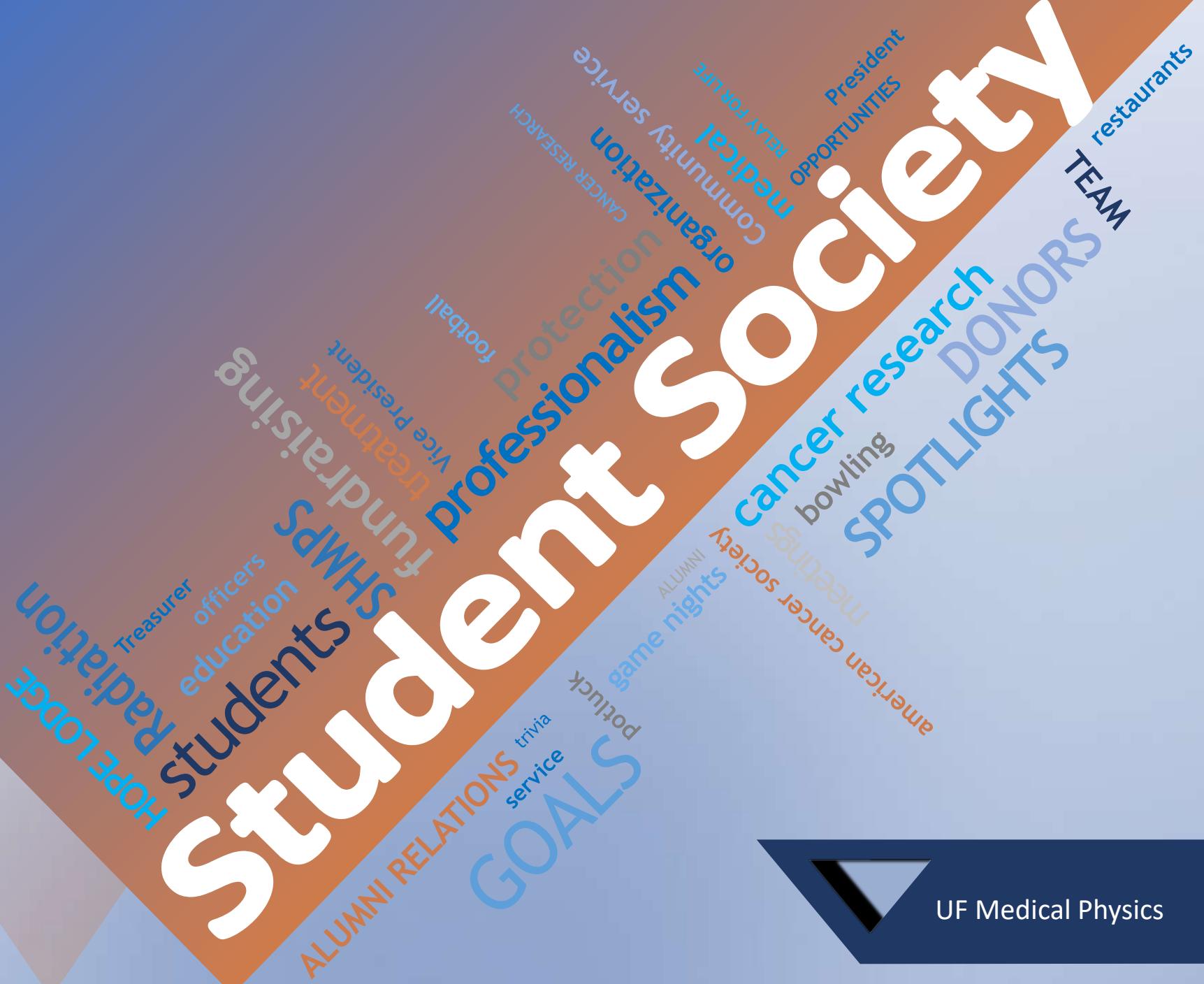
**Q. Why would you encourage an undergraduate student to go into Medical Physics?**

A. Medical Physics is a field where you have it all! The technology and systems in both diagnostic and therapeutic medicine continue to evolve and they need smart, inquisitive medical physicists to develop and support them. You get to work with some of the smartest people in medicine...radiologists, other physicians, engineers, technologists, nurses and medical physicists. Your work really impacts patient care. You make a difference in their lives. And, relative to other fields in physics, our salaries are not too shabby. But keep in mind...you work hard...medical physicists often have to work long hours during nights and weekends to access the diagnostic and therapeutic rooms to do their jobs.

**Q. What was the most fulfilling aspect of your career?**

A. I can't pick one "most" so I'll give you 2. The first was serving on the FDA's National Mammography Quality Assurance Advisory Committee to advise them on developing the 1998 final rules for the Mammography Quality Standards Act (MQSA). At the time, I was working at the George Washington University and was one of two medical physicists on the committee. There were some incredible people on the committee (Ed Hendrick, PhD, Larry Bassett, MD, and Mike Linver, MD to name a few) and in the FDA (Charlie Finder, MD) at the time. We all learned "just because you can regulate it doesn't mean you should regulate it." As a result, the FDA issued rules that were reasonable and had a huge positive impact on the quality of mammography for women in the US. The world took notice.

The second was my involvement with Image Gently. I was a senior director at the American College of Radiology at the time and our CEO, Harvey Neiman, MD, asked my advice upon receiving a letter from the Society of Pediatric Radiology's Marilyn Goske, MD. She was asking the ACR to be part of and support their new initiative to "reduce or "child-size" the amount of radiation used when obtaining a CT scan in children." It was called "Image Gently." I said do it! He appointed me to serve on their Steering Committee, which consists of radiologists, radiologic technologists, medical physicists, and dentists, where I still serve today. Every radiologic technologist training program in the country is familiar with it. Image Gently's concepts for child-sizing doses have been expanded from CT to projection x-ray, fluoroscopy, nuclear medicine and dentistry, and have spread world-wide with translations and country/region-specific sister initiatives. If you have not yet pledged to [Image Gently](#) (or [Image Wisely](#), the adult initiative) please visit their website.





# Society of Health and Medical Physics Students Leadership Team



## SHMPS

The Society of Health and Medical Physics (SHMPS) at the University of Florida is an organization for students interested in radiation protection and the medical uses of radiation. The organization's goal is to promote education in the field; inform members on the professional aspects of the field; plan social events; and create opportunities for community service involvement. The group's main activities include Relay for Life, a fundraising event for cancer research, and a dinner at Hope Lodge, where the members of SHMPS prepare and serve dinner to patients residing at Hope Lodge while undergoing treatments. The majority of students are taking the medical physics curriculum at the University of Florida, but any student is welcome to join.



Wes Bolch, PhD  
*Faculty Advisor*

## 2020-2021

Special thanks to the 2020-2021 Society of Health and Medical Physics Students (SHMPS) officers!



Bonnie President  
*President*



Megan Glassell  
*Vice President*



Colin Schaeffer  
*Treasurer*



Nathalie Correa  
*Alumni Relations*

## 2021-2022

Congratulations to the 2021-2022 Society of Health and Medical Physics Students (SHMPS) officers!



Bonnie President  
*President*



Megan Glassell  
*Vice President*



James Perez-Sanchez  
*Treasurer*



Nathalie Correa  
*Alumni Relations*



# Society of Health and Medical Physics Students

## Activities

### 2022 SHMPS Meetings

In 2022, SHMPS meetings will take place on the 2<sup>nd</sup> Monday of every month at 1PM in CG-056, Communicore. Upcoming meeting dates include:

January 10, 2022

February 14, 2022

March 14, 2022

April 11, 2022



### Flag Football

In Fall 2021, SHMPS established its first football team! The 7 on 7 flag football team, named “Gator MP”, played 5 games for a record of 2-3. The team included Bobby Dawson, Jared Baggett, Wyatt Smithers, Ryan Stephenson, Grey Haneberg, Jacob Campbell, Matt Frain, and Lt Ronnie Bolden. For a team of physicists, they did great!

### Social Events

UF SHMPS has hosted multiple socials over the semester to help new students transition to life in Gainesville. They started the year with a bowling night, frequently attend trivia night at a local restaurant, and have multiple game nights. Their biggest event was SHMPSGiving – a potluck held before the Thanksgiving break at beautiful Lake Wauburg.

### SHMPS Relay for Life

Please consider helping UF SHMPS reach their fundraising goal of \$1,000 for Relay for Life.

Relay for life is a community-based fundraising event for the American Cancer Society and other cancer related societies, institutions, and associations. These organizations help improve cancer survival rates and improve quality of life for cancer patients and their caretakers.

Thanks so much for your continued support of UF SHMPS and Relay for Life!

### SHMPS Relay for Life



Izabella Barreto, PhD

### Student Social Hours

Special thanks to Dr Izabella Barreto, who hosted student social hours throughout the pandemic.

These online wellness sessions were established in an effort to support our students' well-being during very challenging times.

The sessions enabled students to check in and support each other, share good news, catch up, and play games – all while maintaining appropriate social distancing protocols.





# Society of Health and Medical Physics Students

## Alumni Spotlights



### Alumni Spotlights

In October 2021, SHMPS launched a new series titled: "University of Florida Medical Physics Alumni Spotlight Series". The first session was held on Thursday, October 28, from 7:30PM to 9:00PM and featured Dr Amish Shah (Biomedical Engineering – 2004) and Dr Robert Staton (Medical Physics – 2005). Drs Shah and Staton provided current students with an overview of their individual journey through graduate school, residency training, and employment in medical physics. They also provided recommendations regarding the medical physics profession and work/life balance.

SHMPS will continue this series throughout 2022.

**SHMPS**  
SOCIETY OF HEALTH AND MEDICAL PHYSICS PRESENTS:

### UF MEDICAL PHYSICS ALUMNI SPOTLIGHT SERIES

Amish Shah, PhD      Robert Staton, PhD

OCTOBER 28, 2021 | 7:30 PM  
ZOOM

The UF Medical Physics Alumni Spotlight Series features an informal meeting with our program alumni where they will lead us through their journey in the field - from graduate school, to residency training, to job search, to employment in the field, and their future directions as working medical physicists. The session is open for questions from current students in the program.



**SHMPS**  
SOCIETY OF HEALTH AND MEDICAL PHYSICS PRESENTS:

### UF MEDICAL PHYSICS ALUMNI SPOTLIGHT SERIES

Dan Long, PhD      Nelia Long, PhD

NOVEMBER 18, 2021 | 7:30 PM  
ZOOM

The UF Medical Physics Alumni Spotlight Series features an informal meeting with our program alumni where they will lead us through their journey in the field - from graduate school, to residency training, to job search, to employment in the field, and their future directions as working medical physicists. The session is open for questions from current students in the program.

# Residency Program

ABR  
Mammography  
Radiography

achievements

ultrasound  
diagnostic  
accreditation

curriculum  
statisitics  
conferences  
NTEGRITY

Scholarly activities

PROFESSIONALISM  
LABS  
RADIATION  
responsibilities



UF Medical Physics

Clinical training  
FLUOROSCOPY CAMPEP  
Journals  
PHANTOMS HONESTY

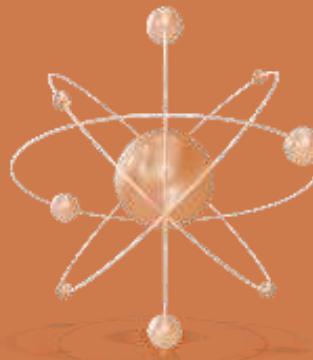
RESPECT  
RADIATION  
ANATOMY  
LABS

interventional  
Computed Tomography  
PATENTS  
communication

HONESTY  
steering committee  
magnetic resonance

# Diagnostic Imaging Medical Physics Residency Program

The UF Diagnostic Imaging Medical Physics Residency Program (DIMPR) provides residents with clinical training and educational activities in a premier academic health care setting in which to fully develop their professional expertise to practice independently.



# Diagnostic Imaging Medical Physics Residency Program



Lynn N Rill, PhD  
Program Director



Stephanie Leon, PhD  
Asst Program Director



Manuel M Arreola, PhD  
Faculty



Izabella Barreto, PhD  
Faculty



Walter Drane, MD  
Clinical Advisor  
Nuclear Medicine



David Gilland, PhD  
Faculty



Eric Thoburn, MD  
Clinical Advisor  
Diagnostic



BC Schwarz, PhD  
Faculty



Susan Stanford, MS  
Faculty



Alok Shankar, PhD  
3rd Year Resident



Justin Brown, PhD  
2nd Year Resident



Mercy Akerele, PhD  
1st Year Resident



# Diagnostic Imaging Medical Physics Residency Program Recruitment - 2022



Lynn Rill, PhD

## DIMPR Residency Match 2022

Under the leadership of Dr Lynn Rill, the UF Diagnostic Imaging Medical Physics Residency Program is participating in the Medical Physics Match for a residency position beginning in 2022. We offer a 3-year diagnostic/nuclear medicine residency.

Our application deadline was December 15, 2021 and multiple highly qualified applicants applied! Interviews are expected to begin in February 2022.

UF | UNIVERSITY of FLORIDA

UF Diagnostic Imaging (and Nuclear)  
**Medical Physics**  
Residency Program (DIMPR)

CAMPEP-Accredited since 2013

## DIMPR Recruitment Efforts

In addition to participating in the American Association of Physicists in Medicine (AAPM) virtual residency fairs, the DIMPR program developed a recruitment video highlighting our program.

Special thanks to UF Health Communications for their help with production!

## DIIMPR Program Highlights

The University of Florida Diagnostic Imaging Medical Physics Residency

UF Health

MORE VIDEOS

▶ 🔍 0:00 / 3:36

CC YouTube



## Diagnostic Imaging Medical Physics Residency Program Recruitment - 2022



### DIMPR Recruitment

In an effort to recruit the most highly qualified applicants to our program, the Diagnostic Imaging Medical Physics Residency Program developed multiple infographics, highlighting various aspects of the program.

# UF DIMPR

*University of Florida Diagnostic Imaging Medical Physics Residency Program*



Top 5 public university.

Competitive salary & benefits,  
commensurate with  
medical residents.

It's great to be a  
Florida Gator!



Final applicants will be  
hosted by the program  
for in-person  
interviews.

Flights, hotel, & meals  
will be compensated,  
as appropriate.



New laptop for the  
duration of the  
resident's time in the  
program.



\$2000 annual  
discretionary fund.  
\$500 annual educational  
incidental expense fund.  
\$1000 annual meal  
support.  
Exclusive stocked lounge.  
Free gym.



\$2000 year 2 AND \$2000  
year 3 to attend affiliated  
meetings.  
PLUS funded travel to  
South America for  
educational exchange  
program.



Ideal sunny location with  
low cost of living.  
Quick access to the  
beaches.  
Two hours from  
theme parks.  
Two hours from 3  
international airports.

**UF**

**D**

**I**

**M**

**P**

**R**



# Diagnostic Imaging Medical Physics Residency Program

## 2021 Graduate



Edmond Olgun, PhD



### 2021 DIMPR Graduate

In June 2021, UF Medical Physics bid a fond farewell to our graduating DIMPR Resident, Dr Edmond Olgun, who accepted a position in Boston, Massachusetts.

Dr Olgun was an incredible resident, and the first to complete our additional year of nuclear medicine training. During his residency, Dr Olgun focused on the development of a novel imaging algorithm for fluoroscopic procedures known as Statistical Pixel Angiography (SPA). This algorithm is an alternative to digital subtraction angiography (DSA), with improved contrast and a potential for dose reduction. His other efforts centered around evaluating a new CT model-based iterative reconstruction algorithm using the modulation transfer function. Dr Olgun's PhD work included pediatric CT dosimetry, nuclear medicine dosimetry, and the development of novel proton tissue-equivalent materials.

UF Medical Physics celebrated Dr Olgun's graduation with a wonderful dinner at Blue Gill!





## Diagnostic Imaging Medical Physics Residency Program Incoming Resident - 2020



Justin Brown, PhD

### Incoming DIMPR Resident – 2020

In July 2020, the UF Diagnostic Imaging Medical Physics Residency Program welcomed Justin Brown as our 2020 incoming resident.

Dr Brown obtained his MS and PhD from the UF Medical Physics Graduate Program. For his PhD studies, Dr Brown worked under the direction of Dr Wes Bolch in the Advanced Laboratory of Radiation Dosimetry Studies (ALRADS). His research was primarily focused on Monte Carlo dosimetry and its application to diagnostic imaging. His undergraduate studies were completed at the University of Idaho in Moscow.

Dr Brown is an incredible asset to our program!



## Diagnostic Imaging Medical Physics Residency Program Incoming Resident - 2021



Mercy Akerele, PhD

### Incoming DIMPR Resident – 2021

In July 2021, the UF Diagnostic Imaging Medical Physics Residency Program welcomed Dr Mercy Akerele as our 2021 incoming resident.

Dr Akerele obtained her PhD in Biomedical Imaging Science at the University of Leeds and her MSc in Physics and Technology of Nuclear Reactors at the University of Birmingham, both in the United Kingdom. She obtained her BTech in Physics Electronics from the Federal University of Technology in Nigeria.

Subsequent to obtaining her PhD, Dr Akerele worked as a Post-Doctoral Associate in the Department of Radiology at Weill Cornell Medicine in New York City.

We are so fortunate to have Dr Akerele in our program!





# Diagnostic Imaging Medical Physics Residency Program Residents



Dr Shankar exploring the West Coast



Dr Shankar and his brother exploring the Queen Mine in Bisbee, Arizona



Dr Akerele and her family in St Augustine, Florida

Dr Shankar

Alok



3<sup>rd</sup> Year Resident

Dr Shankar completed two years of the diagnostic imaging component in the DIMPResidency and is now spending his third year focused on nuclear medicine physics and radiation safety.

His research interests include CT organ dose calculations; O-Arm dose indices, radiotherapy treatment for COVID-19 patients using FPD; variation in photometer measurements; and PET protocol optimization.

In August 2021, Dr Shankar passed Part II of the American Board of Radiology exam in Diagnostic Medical Physics.

For his 2021 vacation, Dr Shankar and his brother drove across the country from Palo Verde Beach, California to Neptune Beach, Florida. They visited numerous national and state parks along the way.

Dr Brown

Justin



2<sup>nd</sup> Year Resident

Dr Brown is currently completing his 2<sup>nd</sup> year in the program and is focused on scheduling and testing all CT, fluoroscopic, and MRI units at UF Health in Gainesville.

He has also engaged in multiple teaching assignments, including teaching peak skin dose calculations to our incoming graduate students and preparing lectures on ultrasound for both graduate students and radiology residents.

Dr Brown is also working on a clinical project that involves optimization of the UF breast MRI protocol to improve image quality.

Dr Akerele

Mercy



1<sup>st</sup> Year Resident

Dr Akerele, our incoming resident, is working closely with our residents and faculty in carrying out physics testing and surveys of various radiographic, CT, fluoroscopic, mammographic, ultrasound and MRI units. She also helps in teaching demo labs to medical physics graduate students and radiology residents.

She is currently carrying out research with Dr Leon, Assistant Professor, and Dr Shankar, 3<sup>rd</sup> Year Resident, on the variation in photometer measurements. She is also interested in diverse clinical projects related to CT and fluoroscopy.

During the winter break, Dr Akerele and her family visited St Augustine, Florida, known as the "Ancient City".



## Diagnostic Imaging Medical Physics Residency Program Future Residents

Wishing  
the future  
generation  
of medical  
physicists  
a lifetime  
of good  
health and  
much  
happiness!



Mercy Akerele, PhD

### Mercy Akerele, PhD

Congratulations to Mercy Akerele, incoming DIMPR resident, & her family on the birth of their beautiful baby boy!

Timothy Akerele was born at 1:21AM on Friday, May 14, 2021, weighing 8lbs, 9 ounces.



Edmond Olguin, PhD

### Edmond Olguin, PhD

Congratulations to Dr Edmond Olguin, 2021 DIMPR Graduate, & Dr Catherine Olguin, 2021 PhD Graduate, on the birth of their beautiful baby boy!

Leonardo Edmond Olguin, who was born on Tuesday, September 21, 2021, in Boston, MA!





# Diagnostic Imaging Medical Physics Residency Program

## Research Updates



Edmond Olguin, PhD

### 2021 Research Week Winner

Congratulations to Dr Edmond Olguin, 2021 DIMPR Graduate, on tying for first place in the 2021 UF Radiology Research Week. Dr Olguin's presentation was titled "*Development of a Blooming Suppression Algorithm for CT Angiography*".



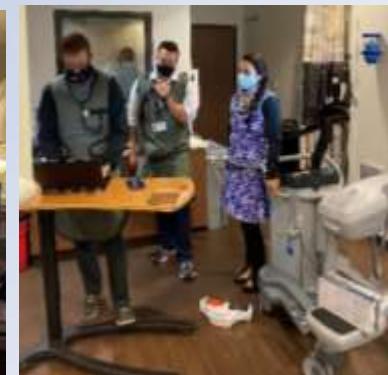
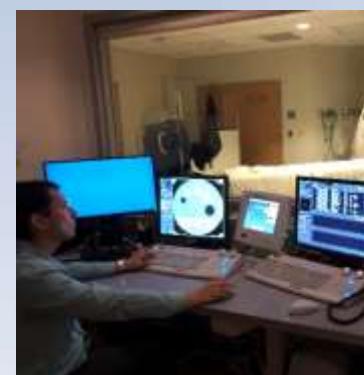
Edmond Olguin, PhD

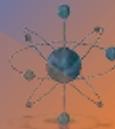
### Physics World

A manuscript by Dr Edmond Olguin, 2021 DIMPR Graduate, which was derived from his PhD dissertation (*Pediatric Dosimetry Tools for Diagnostic Imaging and Proton Therapy Applications*) under Dr Wesley Bolch, Distinguished Professor, was written about in an article titled *Tumour composition matters in radiopharmaceutical therapy* on [Physics World](#).



Wes Bolch, PhD





# Diagnostic Imaging Medical Physics Residency Program

## Research Highlights



### Research Highlights

Residents in the UF Diagnostic Imaging Medical Physics Residency Program are actively involved in multiple research endeavors!



#### UF Medical Physics Research Highlight

Edmond Olgain, PhD

**Specific absorbed fractions and radionuclide S-values for tumors of varying size and composition.**

Olgain, E.; President, R.; Ghaly, M.  
Frey, E.; Sgouris, G.; Bolch, W.

*Physics in Medicine & Biology*, 2020.



#### UF Medical Physics Research Highlight

Justin Brown, PhD

**Dosimetric considerations of  $^{99m}\text{Tc}$ -MDP uptake within the epiphyseal plates of the long bones of pediatric patients**

J. L. Brown | B. Sexton-Stallone | Y. Li | E. C. Frey  
S. T. Reeves | F. H. Farley | D. Hyko | X. Cao | C. Choi  
C. H. Kim | G. Sgouris | J. P. Ains | W. E. Bolch

*Physics in Medicine and Biology*, November 2020  
Volume 65



#### UF Medical Physics Research Highlight

Justin Brown, PhD

**A GPU-accelerated framework for individualized estimation of organ dose in digital tomosynthesis**

S. Sharma | A. Kapadia | J. Brown  
W. P. Sgouris | W. Bolch | E. Samai

*Medical Physics*, December 2021



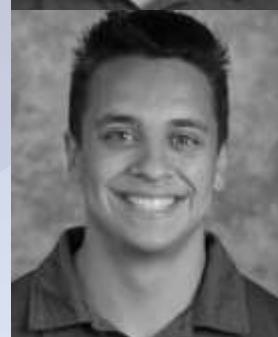
#### UF Medical Physics Research Highlight

Justin Brown, PhD

**Body morphometry appropriate computational phantoms for dose and risk optimization in pediatric renal imaging with  $\text{Tc-99m}$  DMSA and  $\text{Tc-99m}$  MAG3**

J. L. Brown | B. Sexton-Stallone | Y. Li  
E. C. Frey | S. T. Reeves | F. H. Farley | D. Hyko  
X. Cao | G. Sgouris | W. E. Bolch

*Physics in Medicine and Biology*, November 2020  
Volume 65



#### UF Medical Physics Research Highlight

Justin Brown, PhD

**Renal  $99\text{m}$  Tc-DMSA pharmacokinetics in pediatric patients**

D. Hyko | M. Blay | Y. Li | J. L. Brown | S. O'Reilly  
K. Khanamir | A. B. Goodland | B. Sexton-Stallone | X. Cao  
D. Zarebski | F. H. Farley | S. T. Reeves  
W. E. Bolch | E. C. Frey | G. Sgouris

*EJNM Physics*, December 2021  
Volume 8



#### UF Medical Physics Research Highlight

Justin Brown, PhD

**DeepAMO: a multi-slice, multi-view anthropomorphic model observer for visual detection tasks performed on volume images**

Y. Li | J. Chen | J. L. Brown | S. T. Reeves | X. Cao  
F. H. Farley | G. Sgouris | W. E. Bolch | E. C. Frey

*Journal of Medical Imaging*, January 2021  
Volume 8



## Diagnostic Imaging Medical Physics Residency Program AAPM



### American Association of Physicists in Medicine

UF Medical Physics residents were well represented at the 2020 & 2021 American Association of Physicists in Medicine meetings.



**Edmond Olguin, PhD**

*"Evaluation of the Modulation Transfer Function From a Model-Based and a Statistical-Based Hybrid Iterative Reconstruction Algorithm Using Single-Energy and Dual-Energy CT"; Oral presentation.*



**Alok Shankar, PhD**

*"Dosimetric Evaluation of O-Arm Cone Beam Computed Tomography (CBCT) Scan Modes for Pediatric Head Scans"; A Shankar, E Olguin, F Bova, M Arreola; AAPM; Virtual; 2021.*

*"Adjustment of CT Scan Start Location for CT Organ Dose Calculations Using a Commercial Dose Monitoring Software"; A Shankar, I Barreto, L Rill; AAPM; Virtual; 2021.*



## Diagnostic Imaging Medical Physics Residency Program RSNA



### Radiological Society of North America

In November 2021, Dr Alok Shankar, 3<sup>rd</sup> Year Resident, and Dr Justin Brown, 2<sup>nd</sup> year Resident, attended the 2021 annual meeting of the Radiological Society of North America in Chicago, Illinois, where they were able to meet with various vendors and gain valuable updates on their latest technological advancements.

While in Chicago, they were also able to explore Skydeck Chicago at Willis Tower, where they stepped onto the Ledge – 1,353 feet in the air!





## Diagnostic Imaging Medical Physics Residency Program Shielding Inspection

### UF Health Wildlight

Our diagnostic imaging medical physics resident, Dr Alok Shankar, and two of our graduate assistants (Anahita Heshmat & Nathalie Correa) assisted our faculty in shielding integrity testing at UF Health Wildlight. Shielding inspections were performed for a CT Room, R/F Room, Mammography suite, and Dental CBCT suite under the guidance of Dr Manuel Arreola and Sofia Ioannidou (EH&S).



## Diagnostic Imaging Medical Physics Residency Program Alumni Accolades



Edmond Olguiin, PhD



Zhongwei Zhang, PhD

### ABR Oral Exam, Part 3

Congratulations to two of our graduates who recently passed the American Board of Radiology Oral Exam, Part 3: Dr Edmond Olguiin and Dr Zhongwei Zhang! Dr Olguiin is a Medical Physicist at Beth Israel Deaconess Medical Center in Boston, Massachusetts. Dr Zhang is an Assistant Professor at Washington University School of Medicine in St Louis, Missouri. We are so proud of our graduates!



## Diagnostic Imaging Medical Physics Residency Program Where Are They Now



**Ryan Fisher, PhD**  
MetroHealth System  
Cleveland, OH



**Weiyuan Wang, PhD**  
University of Oklahoma  
Norman, OK



**Michael Wayson, PhD**  
Baylor Scott & White Health  
Dallas, TX



**Zemei Liu, PhD**  
West Physics  
Atlanta, GA

2013

2013

2014

2015

2016

2017

2018

2019

2021



**Matt Hoerner, PhD**  
Yale University  
New Haven, CT



**Donglai Huo, PhD**  
University of Colorado  
Denver, CO



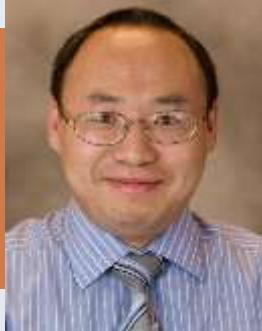
**BC Schwarz, PhD**  
University of Florida  
Gainesville, FL



**Zhongwei Zhang, MD, PhD**  
Washington University  
St Louis, MO



**Edmond Olguin, PhD**  
Beth Israel Deaconess  
Boston, MA



# Weiyuan Wang, PhD

## Assistant Professor, University of Oklahoma



Dr Weiyuan Wang was our third UF Diagnostic Imaging Medical Physics Residency Program graduate (2013).

Dr Wang obtained a Bachelor of Engineering (Electronics) from Northwestern Polytechnical University in China in 1998. After graduation, he worked as a Research Engineer at Shenyang Aircraft Research Institute.

He obtained a MS in Electrical and Computer Engineering from the University of Alaska Fairbanks in 2003, where he also served as a research and teaching assistant. Subsequent to graduation, Dr Wang worked as a Development Engineer at the High Power Auroral Stimulation (HIPAS) Observatory in Fairbanks – a research facility built to study the ionosphere and its influence on radio communications.

In 2009, he obtained a MS in Medical Physics from the Toshiba Stroke Research Center at the State University of New York (SUNY) in Buffalo. In 2011, he obtained his PhD in Medical Physics from SUNY at Buffalo. His PhD dissertation was titled “High Resolution X-Ray Images: System Design and Application”. While completing his graduate studies in Buffalo, he also worked as a research and graduate assistant.

Subsequent to graduation, Dr Wang became our physics resident, where he engaged in various clinical activities, including quality assurance for a range of diagnostic imaging modalities (CT, MRI, Fluoroscopy, Mammography, etc).

After completing residency in 2013, Dr Wang secured a position as a Senior Diagnostic Medical Physicist at Memorial Sloan Kettering Cancer Center in New York City. Throughout his two years at Memorial Sloan

## Resident Alumni Spotlight

Kettering, Dr Wang performed quality assurance surveys for a range of diagnostic imaging modalities (CT, Fluoroscopy, Mammography, etc).

In 2015, Dr Wang accepted a new position in the Department of Radiological Sciences with the College of Medicine at the University of Oklahoma Health Sciences Center in Oklahoma City, where he is an integral member, contributing to the clinical, research, and educational missions of the department. He is licensed by the US Food and Drug Administration as a MQSA Qualified Mammography Medical Physicist and is board certified by the American Board of Radiology as a Diplomate in Diagnostic Medical Physics.

As an Assistant Professor, his clinical duties encompass quality assurance for a range of diagnostic imaging modalities (CT, fluoroscopy, mammography, etc). He is also actively engaged in teaching and instruction. He currently teaches medical physics graduate students, medical physics residents, and radiology residents. He serves as the course instructor for *Radiation Protection and Shielding in Medical Installations* (RADI 5102) and serves as a lecturer for multiple resident lectures (clinical care/instruction conferences; journal club sessions). He has also served on several graduate student MS committees.

Dr Wang is also involved in various research endeavors, including patient radiation dose estimation for all modalities, image quality improvement, and protocol optimization.

Throughout the years, Dr Wang has given multiple presentations at local, regional, national, and international meetings. He has also contributed to several scientific/scholarly journals (peer-reviewed and non-peer reviewed).

Dr Wang serves as the Chair of the Graduate Admissions Committee and is a member of multiple other graduate committees, including: Academic; Awards; General Examination; Curriculum; Recruiting and Promotion; Student Requirement Evaluation; and Thesis and Dissertation. He is an active member of the American Association of Physicists in Medicine (AAPM) and the Radiological Society of North America (RSNA). He also serves as a reviewer for the Journal of Applied Clinical Medical Physics and the International Journal of Computer Assisted Radiology and Surgery.

Outside of physics, Dr Wang is a member of the American Radio Relay League (AARL) and is a licensed amateur (Ham) radio operator holding an extra license (N3WY, volunteer examiner). He loves spending time with his wife and three children, age 7, 9, and 11. His nine-year-old son was born in Gainesville when he was a DIMPR resident. Dr Wang's hobbies include traveling, badminton, and unicycle. He is also the current principal of the ABC Edmond Chinese School in Edmond, Oklahoma.

We are honored to highlight Dr Wang and look forward to his continued success!

# Weiyuan Wang, PhD

## Q&A with Dr Wang



**Q. How did the University of Florida prepare you for a career in Medical Physics?**

A. The UF residency provided me with hands on clinical medical physics experience for all modalities. I was also taught how to be a good and responsible physicist. Not only did I learn what I needed to know, but also how to find answers for things I didn't know.

**Q. How did you decide between therapeutic or diagnostic medical physics?**

A. It was easy for me to decide because my research and clinical experience during my PhD studies was diagnostic medical physics.

**Q. What do you know now that you wish you had known as a graduate student?**

A. As a graduate student, I didn't realize how valuable the clinical experience is. A good residency (UF!) will positively impact a physicist's future career/life.



**Q. What advice would you give to a graduate student in Medical Physics?**

A. To graduate students: try your best to get more clinical experiences because this will help you getting into residencies. To residents: try your best to learn as much as you can. You can spend half an hour on a TG report, or 10 hours – the outcome will be different. Make good notes because you cannot remember everything. Ask questions because the faculty is there to help. Double check your reports before sending them to the faculty for approval because you will often find typos/errors if you diligently review them. Try to find references for different limits or methods from papers, reports, or regulations instead of just remember that "Dr X said that's the limit" – this will avoid mistakes or misunderstandings.

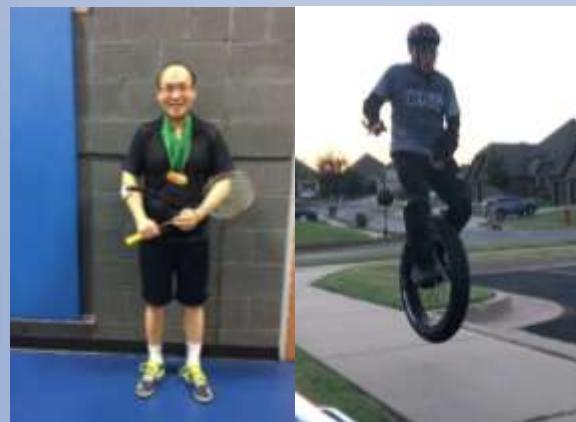


**Q. What was the most fulfilling aspect of your career?**

A. Even though I am not a physician, I am still part of the medical team and I am helping patients.

**Q. Why would you encourage an undergraduate student to go into Medical Physics?**

A. About fifteen years ago, I needed to make a decision as to whether I should further my education in Electrical Engineering, or switch to medical physics. At that time, I was an electrical engineer supporting plasma physics research. After receiving offers of admission for PhD studies in both electrical engineering and physics, many of my colleagues recommended selecting medical physics. At that time, my sister was a PhD student in the same building as the medical physics program and I was told the faculty were nice and all of the program graduates got great jobs! Obviously, I also found it very interesting. I don't regret my decision and you won't either. Continuing to a residency will provide clinical experience, board certification, and a 6-figure job!



# Undergraduate Internship

MEETINGS  
semester  
activities  
Endeavors  
reports  
Collaboration  
OPPORTUNITY  
Students  
RADIODIAGNOSTIC  
Quality Control  
Collaboration  
GROWTH  
valuable  
futures  
bright  
MODALITIES  
understanding  
experience  
SHADOWING  
RESEARCH  
exposure  
clinical

## ACADEMIC Skills

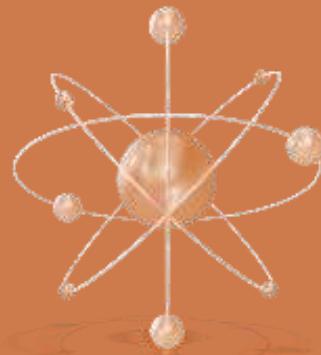
TEAMWORK  
PROFESSIONAL  
INTERPERSONAL  
hospital  
COMMUNICATION  
collaboration  
INTERPERSONAL  
hospital



UF Medical Physics

# Medical Physics Undergraduate Internship Program

The UF Medical Physics Undergraduate Internship Program provides current UF undergraduate students with a one-semester unpaid internship opportunity to maximize their exposure to Medical Physics.



# Medical Physics Undergraduate Internship Program



Dr Barreto

Under the direction of Dr Izabella Barreto, Assistant Professor, undergraduate interns are engaged in a multitude of activities, to include assisting faculty and graduate assistants with clinical duties and research projects. Opportunities include:

Medical Physics Quality Control

Radiological Clinical Exam Observations

Medical Physics Research Endeavors

Interns log their activities (4-6 hours required each week) and submit monthly reports, which are reviewed during one-on-one meetings.

**100%**

100% of our interns would recommend the program to other applicants.

**100%**

100% of our interns believe it is a valuable experience for their academic & professional growth.

**100%**

100% of our interns left the internship with a better understanding of medical physics.

**100%**

100% of our interns plan on applying to graduate school for medical physics.

**100%**

100% of our interns agree the program improved their communication & interpersonal skills within a hospital setting.

**100%**

100% of our interns agree the program provided opportunities to foster teamwork & collaboration.



# Undergraduate Internship Program Admissions



## Fall 2022

We are currently accepting applications for the Fall 2022 semester. Interested applicants should submit a curriculum vitae and a one-page letter of intent to [Dr Izabella Barreto](#) by August 26, 2022.

### Structure

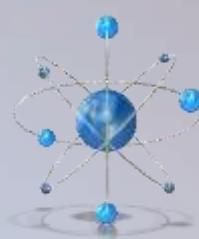
- Unpaid internship offered once per academic semester (15 weeks long)
- Interns are required to attend 4-6 hours per week, flexible around class schedules
- Eligible applicants: UF undergraduate Junior or Seniors majoring in STEM fields



### Format

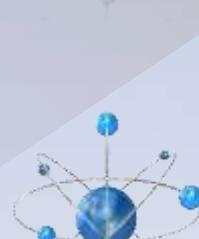
- Weekly rotations in various clinical and research tasks:

Diagnostic Imaging; Nuclear Medicine; Radiation Therapy; Radiation Safety; Stereotactic Radiosurgery; Computational Dosimetry; Image Analysis



### Benefits

- Introduces students to careers in medical physics with various engaging opportunities
- Offers mentorship and guidance from graduate students and faculty for career advising
- Network across campus for opportunities with professors, graduate students, and physicians



Dr Izabella Barreto, Assistant Professor, presented a session about the Undergraduate Internship Program at the International Mentoring Association's (IMA) Annual Symposium in February 2021.

The session, titled "*Cultivating Mentorship in a Structured Clinical Program in the STEM Disciplines*" covered how the program was designed to meet three needs in the field of medical physics, including recruitment of talented undergraduate students; inclusion of underrepresented students in STEM; and development of high-level cognitive skills.

The program's goals, design, incorporation of mentorship, initial experience, and future steps were also reviewed in the session.

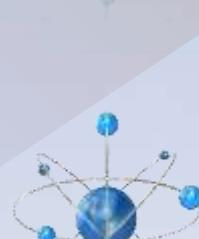


### IMA Annual Symposium

### Format



### Benefits



## Fall 2021 Intern Spotlight

In Fall 2021, the UF Medical Physics Undergraduate Program welcomed eight interns into the program, all of whom successfully completed the semester and gave excellent presentations.

**Madison Bushloper  
Carlos Colon  
Garrett Fullerton  
Cierra Gibson  
Nathaniel Haas  
Daniela Lucas  
Nathan Spear  
Ethan Stolen**





## Undergraduate Internship Program Intern Spotlight



### Spring 2020 Intern Spotlight

Congratulations to our Spring 2020 interns! After their experience in the Spring 2020 Medical Physics Undergraduate Program, these four interns overcame the limitations of the COVID-19 pandemic and pursued further academic opportunities. We are very proud of these outstanding students and look forward to their bright futures.



#### **Jessica Dominici**

An undergraduate student in Nuclear Engineering, Jessica joined a research project under Dr Andreas Enqvist, Director of UF's Nuclear Engineering Program, where she helped radiation testing on the Europa satellite for NASA's Planetary Protection Program. She also became a Proton Therapy Blogger for Mission Search, a healthcare staffing company. In Summer 2021, she will serve as a Medical Physics Intern at Tampa General Hospital's Cancer Center where she will be conducting dosimetry research for cervical cancer under Dr Lawrence Berk, a radiation oncologist. She is graduating in Spring 2022 and has applied to medical physics graduate programs.

Jessica Dominici



#### **Cheima Hicheri**

Cheima graduated from UF with her degree in Biomedical Engineering and worked as a laboratory technician in Dr Disterhoff's laboratory at the Department of Physiology at Northwestern University Feinberg School of Medicine. Her research focuses on understanding the biological and behavioral markers of learning and memory in Alzheimer's disease rat models. She has applied for graduate programs in biomedical imaging and is waiting to hear back now.

Cheima Hicheri



#### **Cindy McCabe**

An undergraduate student in Nuclear Engineering, Cindy was awarded the American Association of Physicists in Medicine (AAPM) DREAM Fellowship Award in Summer 2020, during which she performed a virtual Dual Energy CT research project supervised by Dr Izabella Barreto. She attended the AAPM's 2020 Annual Meeting and had her abstract accepted to present her research project at the AAPM's 2021 Spring Clinical Meeting, titled "CT Number Accuracy Along the Z-Axis of a Wide-Beam 320-Detector Dual Energy CT Scanner". She has enrolled in the Medical Physics Graduate Program at Duke University.



#### **Liana Mulet**

Liana graduated from UF with her degree in Nuclear Engineering and performed research on a new beta-emitting brachytherapy source for conjunctival tumors under a joint collaboration with Dr Izabella Barreto and Dr Chris Deufel, a medical physicist at the Mayo Clinic. She has enrolled in the Medical Physics Graduate Program at the University of Florida.

Liana Mulet

# PHYSICIST

noun. fiz uh sist/

Someone who solves a problem  
you didn't know you had  
in a way you don't understand.

See also: wizard, magician

# Stay healthy! Be safe!



## Epilogue

*As the pandemic continues to impact the world, we want to extend our heartfelt thanks to our faculty, residents, students, colleagues, and administrative staff on the extraordinary efforts they have made during these very difficult and challenging times.*

*Through their dedication and hard work, UF Medical Physics is thriving. We are forever grateful for the Medical Physics Gator Nation!*



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## **Editor: Brenda Tieden**

*Special thanks to  
Dr Stephanie Leon & Megan Glassell  
for their review of the  
2020-2021 newsletter.*



# MEDICAL PHYSICS

A dense cloud of names representing medical physics professionals, arranged in a circular pattern around the title. The names are color-coded by affiliation:

- UF:** Glassell, Thompson, Trejo, Gonzalez, Ricci, Heggie, Schaeffer, Moretti, President, Mullagh, Moretti, Watchman, Taylor, Padgett, Tien, SUN, Koenigs, Zvetanov, Moore, Parker, Wagner, Thomas, Vanek, Slopsema, BECK, Wang, Paige, Noriega, RILL, BERKOWITZ, BROWN, BOLCH, ALAEI, ATHERTON, PETROCCIA, AL-BASHEER, PADILLA, BARRACLOUGH, FISHER, HARTMANN, JUNEJA, YODGAN, Kielar, Whalen, Kofler, Meeks, LEIPNER-GOMES, DRINDLE, HYMAN, EWALD, BAILEY, DEWEESE, ANDREOZZI, BOVA, BARRETO, HUNG, ALLISON, STUDENSKI, HURTADO, BELMONTE, FENG, PAFUNDI, CORREA, BARRETO, HOERNER, THAKUR, CLEMENTS, JOHNSON, HANLON, CIEPLY, DUBOSE, HOWLEY, GRUSE, RICE, JIN, SCHWARZ, SHAH, CRELNJAK, LAMOURUEUX, HOUGH, MOSS, RAZI, FRANDZ, LEE, GEYER, KIM, WICHMAN, MELTON, LIU, CHOHAN, HYER, DOMALGHITA, HUANG, TIRABO, CHUNG, HUO, Kopecky, Tran, Murff, King, Zhang, Wolfe, Knapp, Fracke, FULLER, AMBROSE, DELORENZO.
- Other Institutions:** Marshall, Shang, OLGUIN, Sands, HAN, CHEN, GEISER, HESHMAT, BARLOW, ALLEN, ABU-AITA, SAINI, YAN, BOOCZKOWSKI, LU, BORREGO, GGANATSIOS, CEBULA, ABADIA, HINTENLANG, Stratmann, SU, LEON, Sheth, Pomije, Maynard, Robins, Reyes, Shepard, Bruner, Sehgal, GEORGE, Rutstein, Gilland, Perez-Sanchez, CIARLEGGLIO, Li, O'DELL, Properzio, Alahmad, JACKSON, Mund, Tseng, Dakkouri.

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