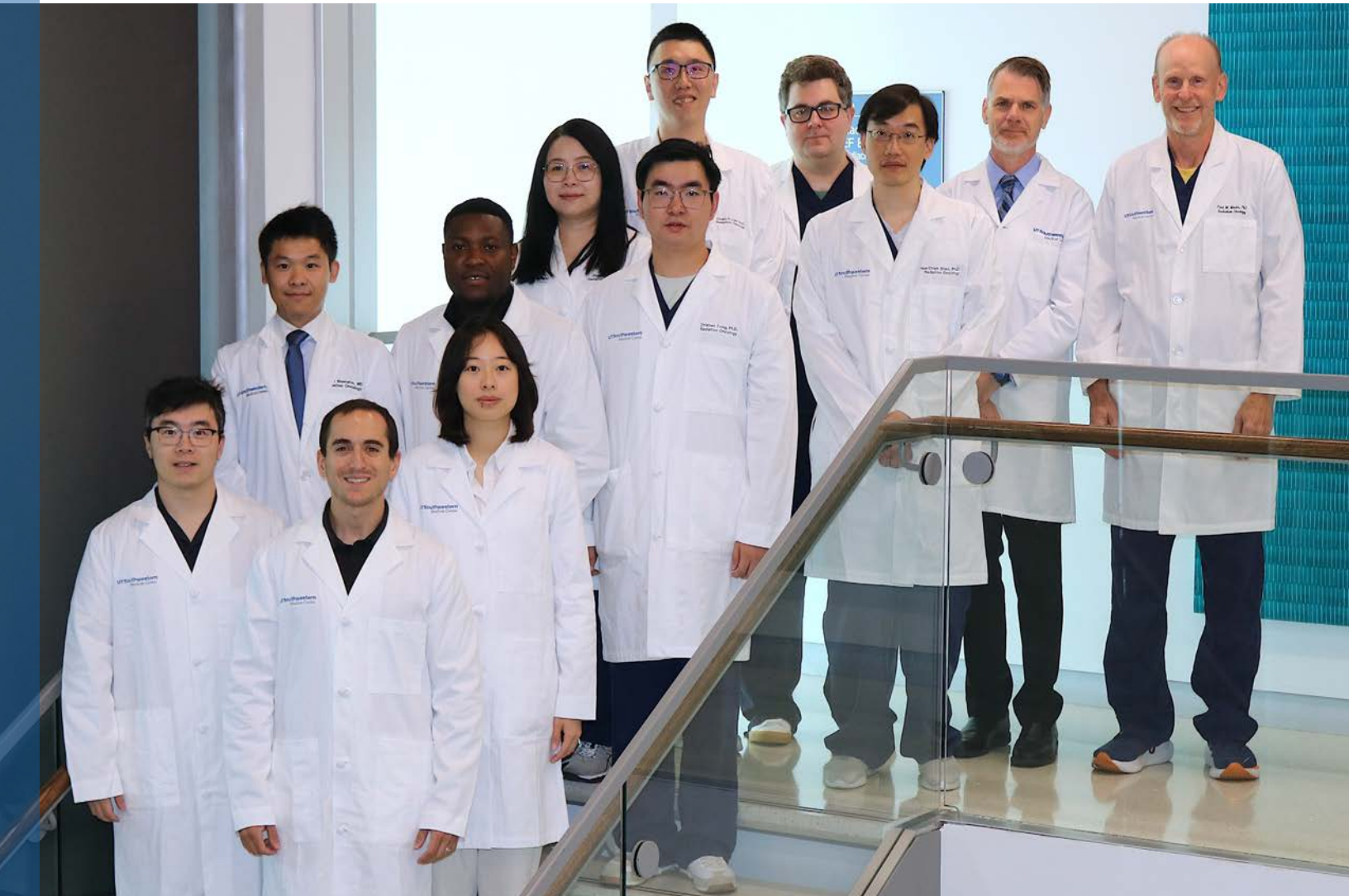




Education & Training: **Clinical Medical Physics Residency Program**

DEPARTMENT OF RADIATION ONCOLOGY



At UT Southwestern's Department of Radiation Oncology, state-of-the-art radiation technology meets human caring, compassion, and personalization.

Led by Robert Timmerman, M.D., FASTRO, FACR, Chair and Professor, the Department of Radiation Oncology provides world-class care to approximately 200 patients each day while conducting groundbreaking research in clinical radiation oncology, medical physics, and molecular medicine. As an integral part of its mission, the Department offers cutting-edge research opportunities and robust educational programs to train the next generation of medical practitioners and scientists.

The mission of our department is three-fold: to deliver a radiation oncology care plan individualized to each patient's specific cancer and personal needs; to discover and improve understanding, foster collaboration, and ultimately, contribute to improving personalized clinical care; and to devise educational programs that fit the individual needs of the learner and to create professionals who see each patient as a unique person.

Our doctors, physicists, and researchers have devoted their lives to better understanding cancer and its treatment. Noted for groundbreaking research by our internationally recognized team, we deliver exceptional care to patients with all types and all stages of cancer. We are the only National Cancer Institute (NCI)-designated comprehensive cancer center in North Texas and one of only 57 NCI-designated comprehensive care centers in the nation. As such, we are held to the highest of standards and are recognized for excellence in clinical care, as well as scientific research and leadership. In addition, we are one of the largest practices in the Southwest.



2015

Harold C. Simmons Comprehensive Cancer Center receives National Cancer Institute (NCI) designation, becoming the first and only in North Texas.



2017

The new William P. Clements Jr. University Hospital Radiation Oncology Building opens, consolidating services at a 63,000-square-foot facility located at East Campus. It is the largest individual facility for radiation oncology in North Texas.



2020

The 12-story third tower at UT Southwestern furthering UTSW's position as a leader in cancer care and opportunities to integrate state-of-the-art GammaPod technology.

2005

Launch of Medical Residency Program

2009

Launch of Clinical Medical Physics Residency Program

2016

SBRT/SABr Training Program established, becoming the first advanced training program in the department. Developed to help oncology professionals learn about the proper implementation of a viable and effective SBRT/SABr treatment practice.



2019

First patient is treated on the GammaPod, which is the first stereotactic body radiation therapy (SBRT) system optimized for treating breast cancer, focused on reducing treatment time and potentially lowering toxicity. UTSW is the first center in Texas and second in the world to offer this technology.



Our physicists and physicians are organized into disease-oriented teams that specialize in treating a particular type of cancer. Every member of these teams contributes their focused expertise toward building personalized treatment plans that leverage the powerful technology at our facilities for our patients.

We perform a broad range of radiation oncology procedures including MR-guided radiation therapy (RT), adaptive RT, biologically guided RT, MRI, IMRT, SBRT, TBI, TMLI, TSE, and HDR brachytherapy. Our department has a collection of the most sophisticated treatment machines and planning systems capable of treating all types of cancer, including:

- Two Varian VitalBeams
- Four Elekta Versa HDs
- Two Varian Ethos
- Two Varian Halcyon
- Accuray CyberKnife M6
- Elekta Gamma Knife Icon
- Elekta Gamma Knife Esprit
- Xcision GammaPod
- Two Elekta Unity MR linacs
- RefleXion PET linac
- Xstrahl superficial unit
- Elekta Flexitron HDR afterloader
- Varian Bravos HDR brachytherapy suite
- Philips 1.5 Ingenia Ambition MR simulator
- GE Revolution CT simulator
- GE Revolution APEX CT scanner
- Ten Vision RT systems
- Varian Eclipse
- Elekta Monaco
- Elekta Oncentra
- Eye plaque brachytherapy
- GammaTile (brain)
- Intravascular brachytherapy
- Brainlab AIRO mobile, compact CT simulator
- GE HealthCare Omni Legend PET-CT simulator



William P. Clements Jr. University Hospital opens, becoming a leading provider of health care and broadening research and education with clinical care. It includes a Gamma Knife suite, equipped with two Gamma Knife Icon.

2022

First patient treated on RefleXion, a treatment machine that incorporates PET imaging with radiotherapy.

2025

Groundbreaking of Radiation Oncology expansion in Fort Worth begins, with an expected opening in 2027.

2021

Completed 71,000-square-foot expansion of Radiation Oncology services, heralding a new avenue of treatment to patients of adaptive therapy. Our first adaptive patient was treated in June 2021; our first adaptive MR-linac patient was treated in August 2021.



2022

The North Campus Outpatient Cancer Care and Brain Research towers opened, which house research efforts of the Peter O'Donnell Jr. Brain Institute and outpatient care and clinical trials space for the Harold C. Simmons Comprehensive Cancer Center.



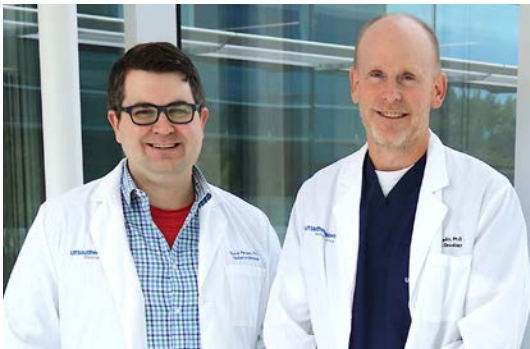
2025

The Department of Radiation Oncology's Veterinary Research and Oncology Clinic (VROC) opens, offering advanced cancer care for pets while contributing to groundbreaking research in comparative oncology.



Clinical Medical Physics Residency Program

Our department is home to one of the largest clinical medical physics residency programs in the world. Led by Paul Medin, Ph.D., Professor and Program Director, and David Parsons, Ph.D., Assistant Professor and Associate Program Director, our program is a two-year, CAMPEP-accredited program emphasizing clinical excellence and academic career development in radiation oncology physics. The program is comprised of more than 80 physics and engineering, molecular medicine, and physician faculty. The current annual clinical medical physics resident salary is **\$71,657** for PGY1, **\$74,258** for PGY2, and **\$77,686** for PGY3 (fellow).



Residency program directors, Drs. Parsons and Medin.

- Applicants must have a Ph.D. degree or equivalent in medical physics, physics, or a closely related field.
- Applicants must qualify to receive a temporary license through the Texas Medical Board (TMB).
- Applicants must submit their CV, a personal statement, a statement of their visa status, three reference letters, and transcripts from graduate and undergraduate schools.

All applications must be submitted through our updated portal. Scan the QR code for detailed instructions and access to the application system. Please review the information carefully before starting your application. **Applications for July 2027 start date are due September 1, 2026.**



Graduation Requirements

- Completion of all eight clinical rotations
- Completion of two full years of clinical training
- Four quarterly written reports
- Completion of 22 oral exams
- Ethics and professionalism modules
- Education conferences, meetings, lectures, chart rounds, and tumor boards
- Teach three lectures per year
- Must maintain a clinical competency rating of “satisfactory” as determined by the Clinical Competency Committee

Available Elective Rotation Topics

- 3D printing
- Artificial intelligence
- API scripting
- GammaPod
- Advanced CyberKnife
- Advanced dosimetry
- Advanced brachytherapy
- Advanced adaptive radiotherapy
- Advanced Gamma Knife
- Advanced machine QA
- Commissioning
- RefleXion
- MRI for radiation oncology
- Radiation oncology clinical survey
- DICOM and clinical trials

Clinical Medical Physics Resident Duties

Clinical medical physics residents are trainees immersed in the clinical operations of radiation oncology and are valued members of the clinical team. Residents learn and support each clinical service as they progress through the program. Specific duties a resident can expect to perform in the program include:

- Linac weekly, monthly, and annual QA
- CT and MRI monthly QA
- Acceptance and commissioning of equipment
- Treatment planning (all services)
- Radioactive material calibration and delivery
- Clinical improvement projects
- Total body irradiation planning and support
- Total skin electron therapy planning and support
- In vivo dosimetry
- 3D bolus fabrication
- Superficial radiation therapy simulation and calculations
- Surface-guided radiation therapy support
- CBCT dose recalculation
- Weekly/final chart checks
- CyberKnife IMRT QA
- Emergency IMRT QA
- Electron output factor measurement
- Supervised physicist of the day
- Adaptive treatment planning and on-console support



An integral part of the Department, residents will experience:

- Uniquely diverse and personalized clinical training with access to state-of-the-art technology
- Hands-on experience with a full complement of special procedures
- Invaluable insight from a number of physics and engineering faculty focused primarily on research that is well-funded by the NIH, American Cancer Society, Radiological Society of North America, Cancer Prevention & Research Institute of Texas, and various corporations

Clinical Medical Physics Residency Rotations 2026-2027		
Main Topic	Month	Study/Oral Exam Topics
Treatment Planning/Ethos	1	Treatment planning techniques
	2	Modern dosimetry
	3	Monitor unit calculations
ART/Unity	4	MRI and PET imaging
	5	MRgRT and adaptive radiotherapy
	6	SBRT
Brachytherapy	7	Radioactive isotopes: TG43 and model-based calculations
	8	Treatment planning for brachytherapy
	9	Radioactive isotopes: regulations and brachytherapy
Stereotactic	10	MV photon/electron shielding design and accepted dose limits
	11	kV photon and isotopes shielding design
	12	Stereotactic radio surgery
Special Procedures	13	Total body irradiation and total skin electrons
	14	AAPM Task Group-142
	15	AAPM Task Group-51 Calibration
Treatment Delivery/TPOD	16	In vivo dosimetry
	17	Simulation/CT/IGRT
	18	Pregnant patients/pacemakers/hip replacements
Elective Rotation 1	19	LINAC design and function
	20	AAPM Task Group-25/70 Electrons
	21	Proton therapy and heavy ion therapy
Elective Rotation 2	22	TG-100 lab
	23	Elective oral
	24	All Residency Comprehensive

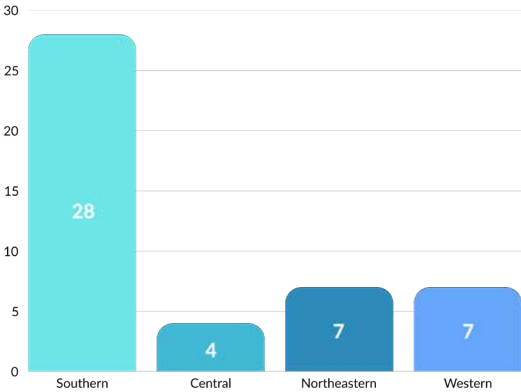
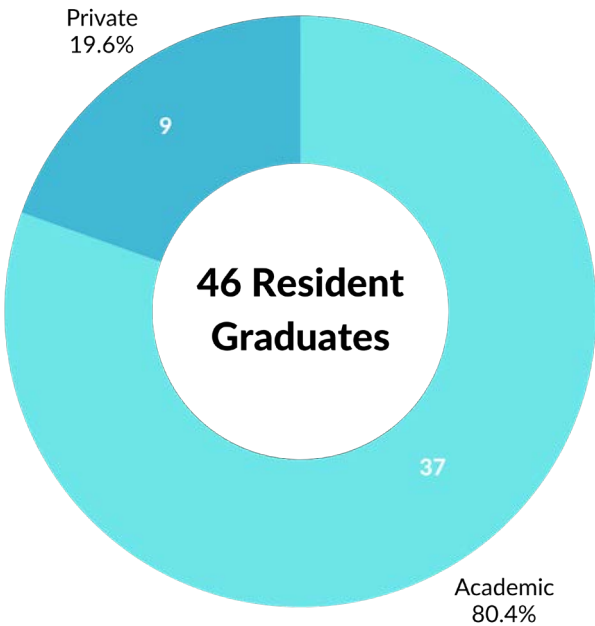
FIGURE 1A. 2026-2027 Clinical Medical Physics Resident Rotations and Oral Exam Topics

		1st Year				2nd Year			
Date	Month	Resident 1	Resident 2	Resident 3	Resident 4	Resident 5	Resident 6	Resident 7	Resident 8
2026	July	1	1	7	13	10	16	19	21
2026	August	2	2	8	14	11	17	20	19
2026	September	3	3	9	15	12	18	21	20
2026	October	4	4	1	7	13	19	10	16
2026	November	5	5	2	8	14	20	11	17
2026	December	6	6	3	9	15	21	12	18
2027	January	7	13	4	1	7	10	16	11
2027	February	8	14	5	2	8	11	17	10
2027	March	9	15	6	3	9	12	18	23
2027	April	10	7	13	4	1	22	22	22
2027	May	11	8	14	5	2	23	23	12
2027	June	12	9	15	6	3	24	24	24
2027	July	13	16	19	21	4			
2027	August	14	17	20	19	5			
2027	September	15	18	21	20	6			
2027	October	16	19	16	10	21			
2027	November	17	20	17	11	19			
2027	December	18	21	18	12	20			
2028	January	19	10	11	18	16			
2028	February	20	11	10	16	17			
2028	March	21	12	23	23	18			
2028	April	22	22	22	22	22			
2028	May	23	23	12	17	23			
2028	June	24	24	24	24	24			

FIGURE 1B. 2026-2028 Clinical Medical Physics Resident Rotation Schedule Example



FIGURES 2A, 2B, AND 2C. Clinical Medical Physics Resident Private/Academic Alumni Statistics and Clinical Medical Physics Resident Alumni Statistics by Region (as of July 1, 2026)



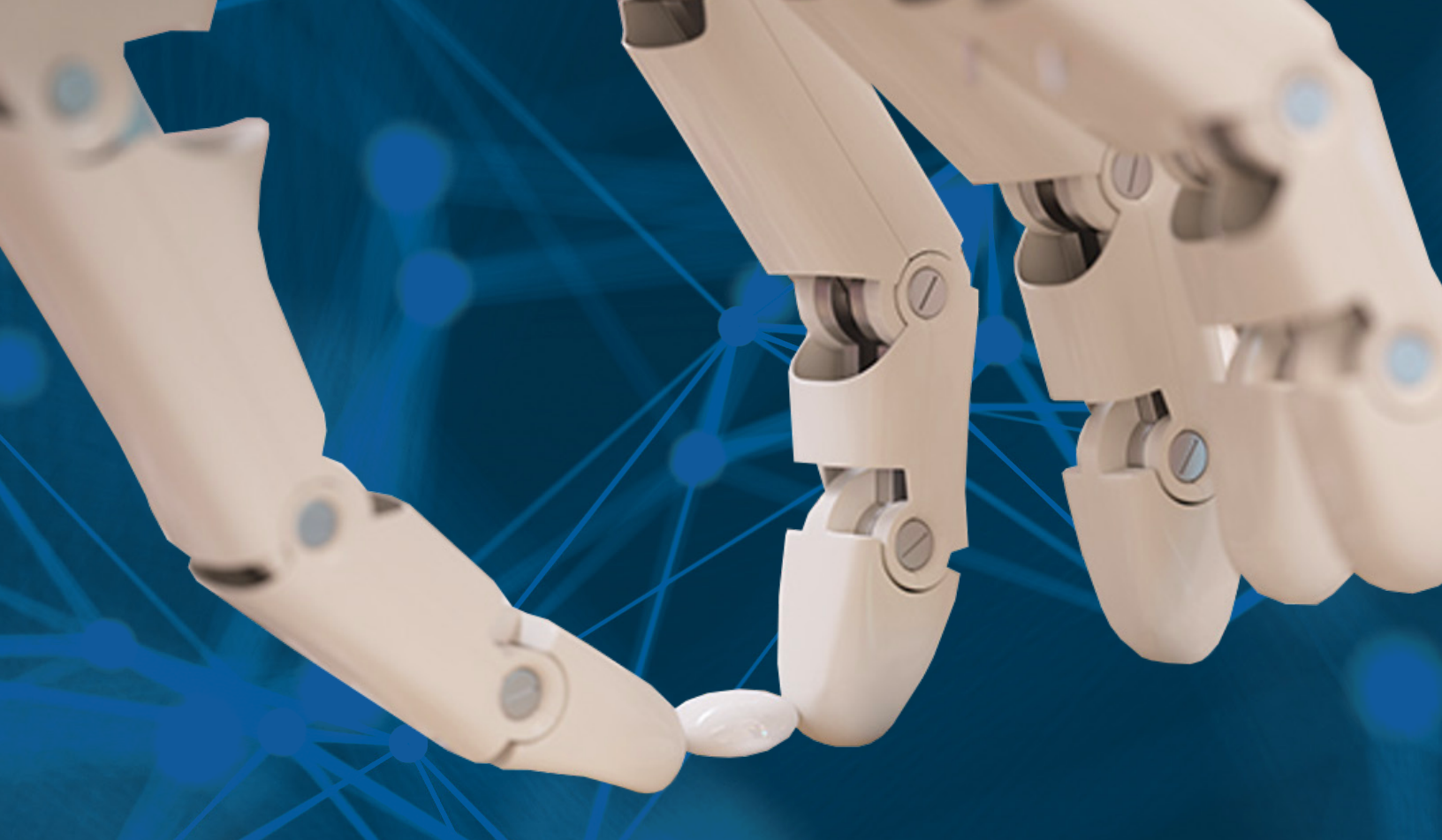
Southern		Northeastern	
Covenant Health, Knoxville	1	University of Rochester	1
Willis-Knighton Cancer	1	Thomas Jefferson University	1
Mayo Clinic, Jacksonville	2	Memorial Sloan Kettering Cancer	1
Inova Fairfax Hospital	1	UPenn Radiation Oncology	1
University of Arkansas	1	Rutgers Cancer Institute	1
UT Southwestern Medical Center	16	Marsden Medical Physics	1
Texas Oncology, Dallas	1	Westchester Medical Center	1
Verily Corp.	1	Total	7
Atrium Health Levine Cancer	1		
Emory University	1		
University of Alabama	1		
MD Anderson Cancer Center	1		
Total	28		
Central		Western	
Mercyhealth Cancer Center	1	Ironwood Cancer Center	1
Washington University	1	Torrance Memorial Cancer	2
University of Chicago	1	Northwest Medical Physics	1
Advocate Aurora BayCare	1	Cedars-Sinai Medical Center	2
Total	4	UC San Diego	1
		Stanford University	1
		Total	7

Life in Dallas

Dallas is one of the most populous cities in the Dallas-Fort Worth metroplex and fourth in the United States. A thriving economy, lower cost of living, no state income tax, and central location make it attractive to individuals, families, and companies looking to relocate.

The metroplex is consistently ranked as one of the top areas for growth in industry headquarters and statistically adds one new local resident every five minutes. Dallas has earned a solid reputation in a variety of areas including culture, dining, sports, outdoors, and shopping.





Medical Artificial Intelligence and Automation (MAIA) Lab

The MAIA lab is a multi-PI lab established in July 2017 within the Department of Radiation Oncology. The lab's main objective is to innovate, develop, and apply artificial intelligence (AI) technologies to empower clinicians, especially those with less experience or limited resources, for improved patient care from these aspects:

- Improve accuracy by retrieving hidden information from patient data/images and performing better than (most) physicians when there is ground truth
- Precise diagnosis and better clinical decision making
- Improve efficiency by automating clinical procedures and saving physicians time in front of computers
- Re-humanize medicine
- Transfer expertise to less experienced physicians by learning from experienced physicians when there is no ground truth
- Reduce health care disparities

Program Characteristics

- 36 faculty, 33 lab members (students, postdocs, residents, research assistants, supporting staff, etc.)
- Most faculty have both clinical and research duties
- 8 active R01s, 2 active R37s, 1 active CPRIT, 3 active R44s/R43s, 11 pending R01s, 1 pending R37, 1 pending NSF, 2 pending CPRIT

Artificial Intelligence for Radiation Therapy

Residents in our program will have the opportunity to participate in the translation and clinical evaluation of AI technologies developed by faculty and trainees in the MAIA lab.

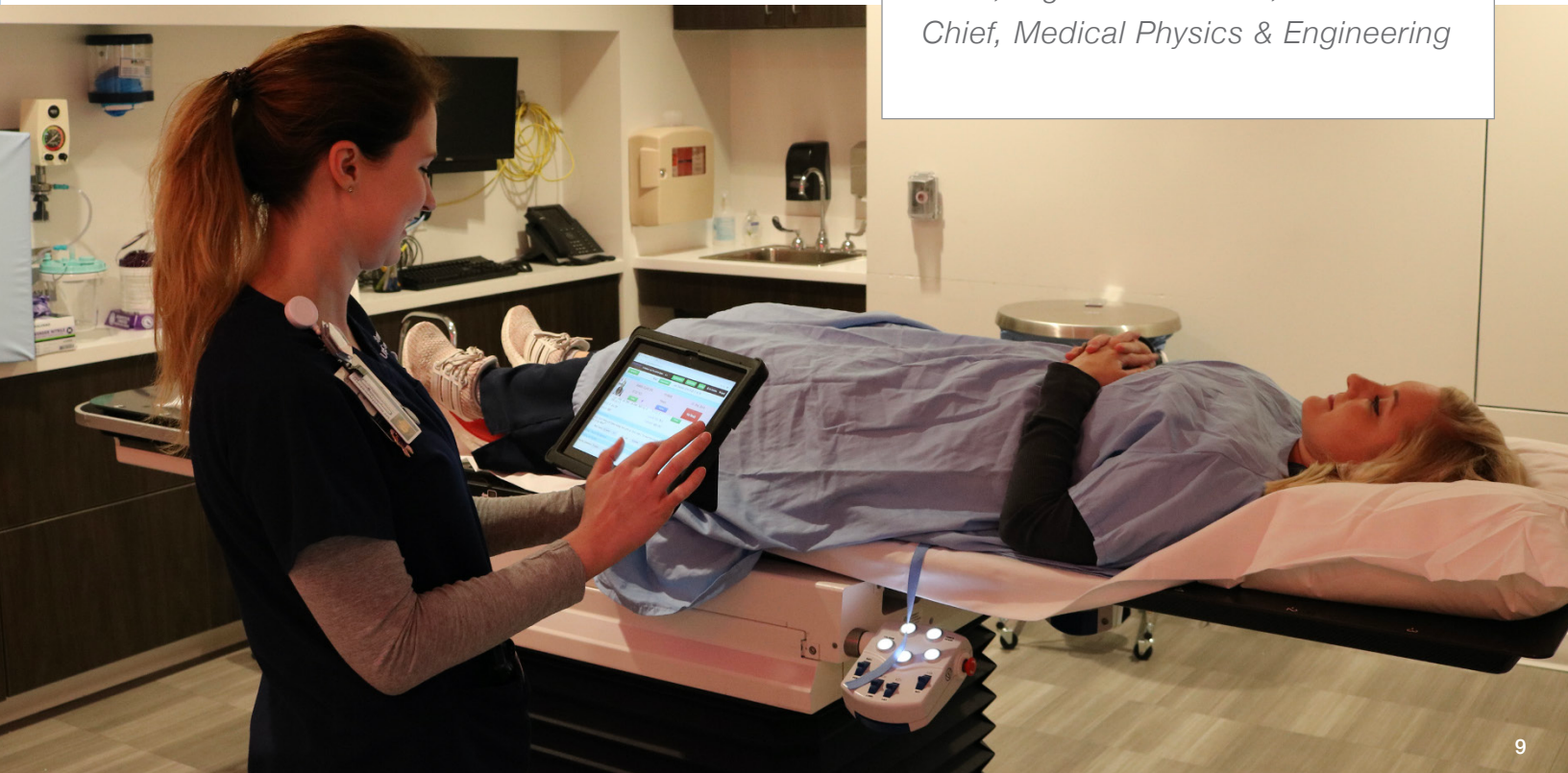
The research in the MAIA lab covers the use of AI in various aspects of cancer radiotherapy, including, but not limited to, organ segmentation, target delineation, dose prediction, treatment planning, outcome prediction, image processing, and smart clinics. A main focus of our AI research is on the safe and effective deployment of AI in clinical practice to solve important clinical problems.

AI for Smart Clinic

- Infrastructure using Bluetooth technology
- Tracking patients, clinical staff, and devices
- First app in clinic: A touchpad checklist before treatment steps are taken and to ensure correct devices are used



Steve Jiang, Ph.D., FAIMBE, FAAPM; Professor of Radiation Oncology; Vice Chair, Digital Health & AI; and Division Chief, Medical Physics & Engineering



Medical Physics Adaptive Radiotherapy Fellowship

To combat the shortage of physicists who are quality primary providers skilled in adaptive radiotherapy (ART), our department offers a Texas Medical Board-approved, two-year Medical Physics Adaptive Radiotherapy Fellowship (MPART).

UT Southwestern Medical Center is the only institution in the world that has multiple advanced ART treatment modalities, and we aim to train the next generation of top-tier medical physicists. These ART treatment modalities include CBCT-guided and MR-guided adaptive radiation therapy and PET-guided radiation therapy.

PROGRAM LEADERSHIP

Andrew Godley, Ph.D., FAAPM
Professor of Radiation Oncology and Associate
Vice Chair of Clinical Physics Operation and Quality



FIGURE 3.
PY 1 and PY 2
MPART Fellowship
Blocks Diagram

Medical Physics Adaptive Radiotherapy Fellowship Block Diagram					
PY 1					
Blocks	1 (1 Month)	2 (3 Months)	3 (3 Months)	4 (3 Months)	5 (2 Months)
Rotation Name	Adaptive radiotherapy orientation and radiation/MR safety training	CT- or CBCT-guided adaptive radiotherapy	MR-guided radiotherapy and adaptive radiotherapy	PET-guided radiotherapy and biology-guided radiotherapy	Research and clinical development
% Clinical effort	100	100	100	100	20
% Clinical development effort					80
PY 2					
Blocks	1 (3 Months)	2 (3 Months)	3 (3 Months)	5 (3 Months)	
Rotation Name	CT- or CBCT-guided adaptive radiotherapy	MR-guided radiotherapy and adaptive radiotherapy	PET-guided radiotherapy and biology-guided radiotherapy	Research and clinical development	
% Clinical effort	100	100	100	20	
% Clinical development effort				80	

Graduate Programs in Medical Physics

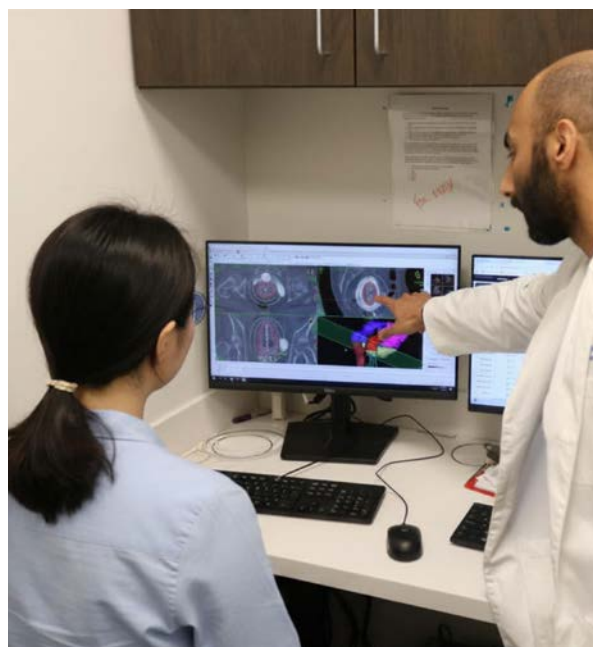
The CAMPEP-accredited Medical Physics Graduate Programs at UT Southwestern provide comprehensive education and training in therapeutic medical physics through an integrated combination of coursework, research, clinical exposure, and faculty mentorship. Students develop the scientific, technical, and professional skills needed for careers in academic medicine, clinical practice, industry, and medical physics residency programs.

Master of Science (M.S.) Program

This two-year program is designed to provide a strong foundation in medical physics through classroom instruction and hands-on clinical training. Students complete CAMPEP-required coursework, participate in clinical practicums across the Department of Radiation Oncology, and work closely with faculty on a capstone project focused on solving real-world clinical challenges. Graduates are well prepared to apply to medical physics residency programs and subsequent careers in medical physics.

PROGRAM LEADERSHIP

Andrew Godley, Ph.D., FAAPM
Professor of Radiation Oncology and Associate
Vice Chair of Clinical Physics Operation and Quality

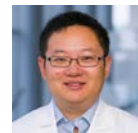


Doctor of Philosophy (Ph.D.) Program

This program combines advanced medical physics education with faculty-mentored research leading to a doctoral degree in the CAMPEP-accredited Medical Physics Program. Students complete core coursework and clinical rotations before transitioning to dissertation research in areas such as artificial intelligence, adaptive radiotherapy, treatment planning, imaging, and computational physics. Graduates are highly competitive for academic positions, industry careers, and medical physics residency programs.

PROGRAM LEADERSHIP

You Zhang, Ph.D.
Associate Professor of Radiation Oncology



Postdoctoral Medical Physics Certificate Program

This CAMPEP-accredited program provides postdoctoral fellows with essential medical physics didactic elements for entry into the medical physics profession, particularly medical physics residencies. The program offers the following courses:

- Radiological Physics and Dosimetry
- Radiation Therapy Physics
- Radiation Protection and Safety
- Fundamentals of Imaging in Medicine
- Radiobiology
- Anatomy and Physiology

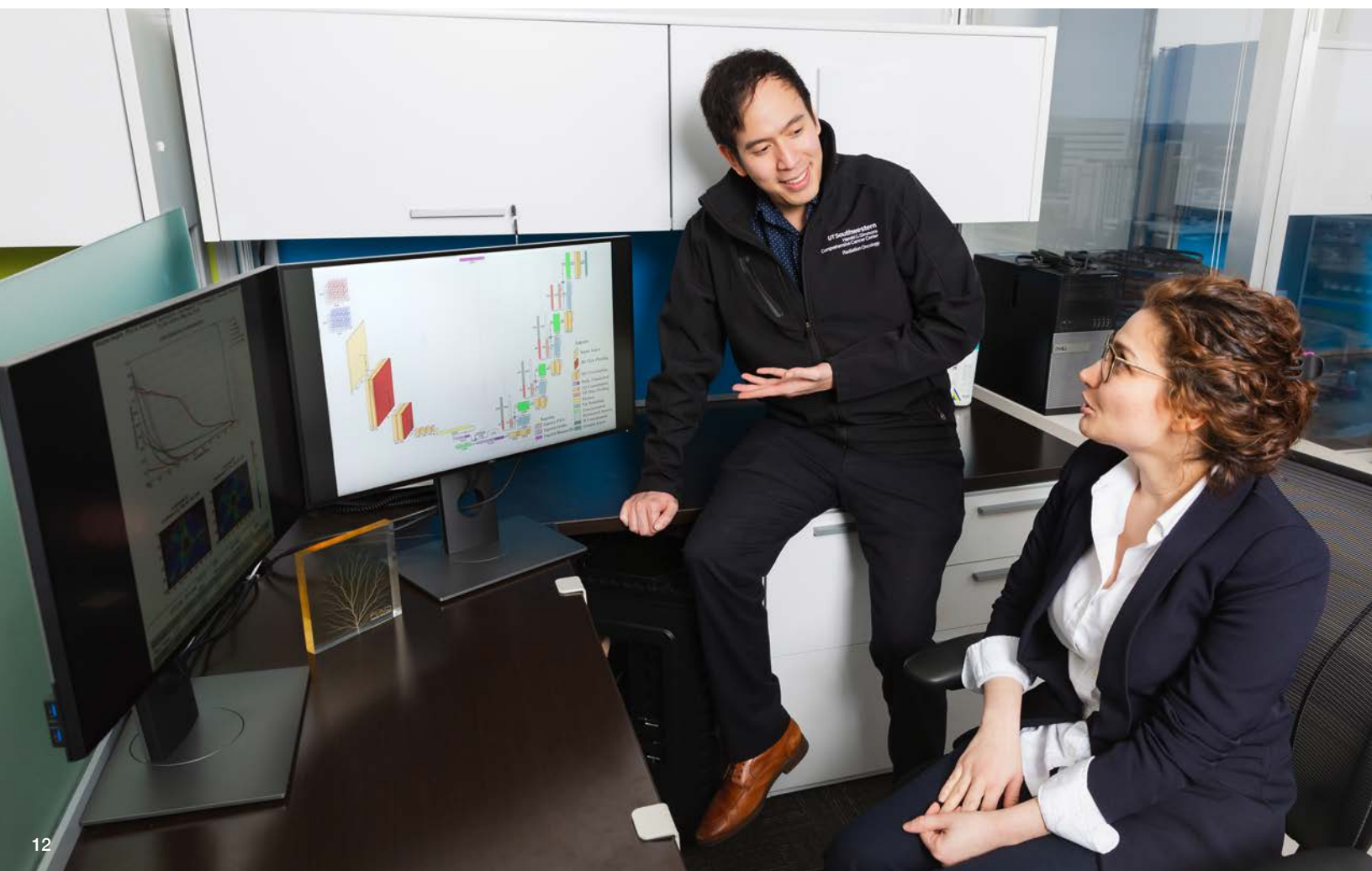
The program is offered to current radiation oncology postdoctoral fellows and all six courses

are offered to graduate students of the Biomedical Engineering (BME) Graduate Program. Since the program is offered to internal candidates only, we do not have a strict application deadline. Students can start to take courses for the program in either fall or spring.

**For individuals who did not graduate from a CAMPEP-accredited M.S. or Ph.D. program, completion of a CAMPEP-accredited Medical Physics Certificate Program is a prerequisite for ABR certification.*

PROGRAM LEADERSHIP

Dan Nguyen, Ph.D.
Associate Professor of Radiation Oncology



SBRT/SAbR Training Program

The Department of Radiation Oncology offers a Stereotactic Body Radiation Therapy (SBRT)/Stereotactic Ablative Radiotherapy (SAbR) training program, the longest running of its kind in the U.S. Radiation oncologists, medical physicists, medical dosimetrists, administrators, and radiation therapists interested in implementing SBRT/SAbR into clinical practice are encouraged to attend this CME program.

FOR MORE INFORMATION

The SBRT Training Program is offered several times a year. For the most updated course dates, please reach out to SBRTProgram@UTSouthwestern.edu.

PROGRAM LEADERSHIP

Zabi Wardak, M.D.
Associate Professor of Radiation Oncology
Chief of CNS Radiation Oncology Service and
Medical Director of the Gamma Knife
Training Program



Justin Visak, Ph.D.
Assistant Professor of Radiation
Oncology



5,741

SBRT/SABR TREATMENTS FOR FY26

FIGURE 4.
SBRT/SAbR Training Program
Course Attendees by Country





881

GAMMA KNIFE TREATMENTS FOR FY26

Gamma Knife Training Program

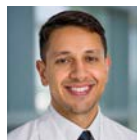
The Gamma Knife Training Program, geared toward radiation oncologists, neurosurgeons, neuro-otologists, and medical physicists, provides a comprehensive understanding for both new and experienced users. The CME/CAMPEP-accredited program offers a new user four-day course, as well as a three-day course for experienced Gamma Knife users upgrading to Icon.

FOR MORE INFORMATION

The Gamma Knife Training Program is offered several times a year. For the most updated course dates, please reach out to GammaKnifeProgram@UTSouthwestern.edu.

PROGRAM LEADERSHIP

Zabi Wardak, M.D.
Associate Professor of Radiation Oncology
Chief of CNS Radiation Oncology Service and
Medical Director of the Gamma Knife Training Program



Strahinja Stojadinovic, Ph.D.
Professor of Radiation Oncology
Co-Director of the Gamma Knife Training Program



Toral Patel, M.D.
Associate Professor of Neurological Surgery



Robert Timmerman, M.D., FASTRO, FACR
Chair and Professor of Radiation Oncology

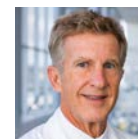


FIGURE 5.

Gamma Knife Training Program Course Attendees by Country



GRAND TOTAL 278

Simulation Center

UT Southwestern's Simulation Center, one of the largest in the United States, replicates and creates virtual environments for training in clinical care and procedures. The enhanced simulation program provides training in 13 competencies, or entrustable professional activities (EPA), and includes valuable hands-on instruction in more than two dozen course areas.

Our simulation training and activities are accredited by some of the nation's leading organizations. Future simulation projects include:

- Creating a series of simulation mastery-based labs to teach brachytherapy procedures and elective rotations for MRI-guidance
- Adaptive therapy
- 3D printing
- Particle therapy
- Artificial intelligence



UT Southwestern

Simmons Cancer Center
Radiation Oncology

UT Southwestern is an Equal Opportunity Employer.

CONTACT US

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214-645-8525

FOR MORE INFORMATION, VISIT OUR WEBSITES

Education: utsouthwestern.edu/radonc
Patient Information: utswmed.org/rad-onc

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 [LinkedIn.com/showcase/ut-southwestern-radiation-oncology](https://www.linkedin.com/showcase/ut-southwestern-radiation-oncology)

FOR PHYSICS PROGRAM INFORMATION, CONTACT:

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