

Led by Quynh-Thu Le, MD, FACR, FASTRO
Katharine Dexter McCormick & Stanley McCormick
Memorial Professor & Chair, the Department of
Radiation Oncology provides services for the treatment
of cancer.

The Stanford University Physics Residency Program is
a therapeutic program designed to provide broad, in-
depth training for qualified individuals in the principles
and modern practice of clinical radiation oncology
physics. The goals of the program are to teach residents
the ethical practice of full service, high quality clinical
radiation oncology physics, and how it is delivered in
cooperation with physicians, nurses, radiation
therapists, and other health professionals in a
structured and regulated environment dedicated to
patient care.

The ultimate educational goal is to qualify the resident
so that, at the end of training, she or he has sufficient
knowledge and experience to engage in the
independent practice of medical physics. A special goal
of the Stanford program is to select and train individuals
with the potential to become clinician scientists who
could contribute in a leadership role to the
advancement of the radiation oncology physics
specialty through engaging in clinical service, teaching,
and the pursuit of scientific investigations.

We welcome all qualified individuals interested in
developing a career in the exciting and rewarding field
of medical physics to apply to our residency program.



Contact Us

875 Blake Wilbur Dr.,
Palo Alto, CA, 95304

650-498-4005

akdiaz@Stanford.edu

<https://tinyurl.com/MED-PHYS-RESIDENCY>



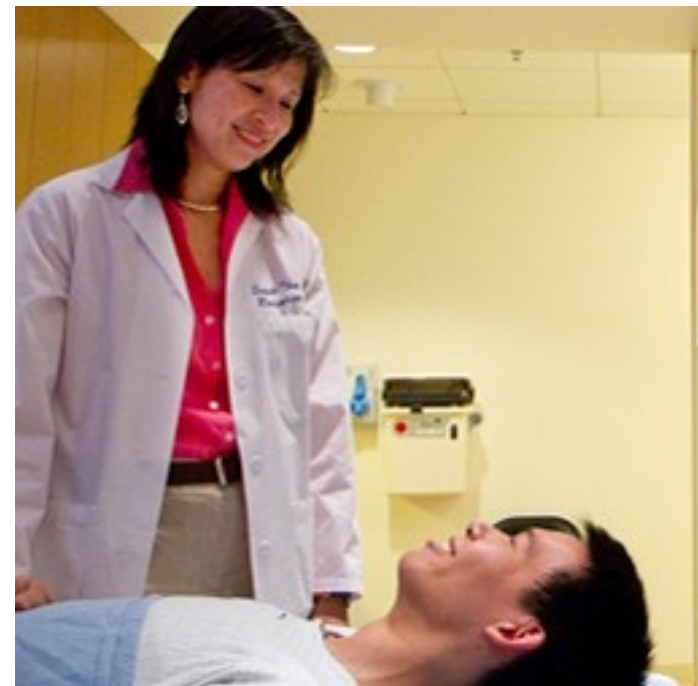
INVEST IN YOUR FUTURE





Structure

The Stanford Radiation Oncology Physics Residency is structured as a two-year program of progressive, supervised clinical training in all areas of radiation oncology physics, with the purpose of enabling a resident to acquire the knowledge and skills needed to practice radiation oncology physics independently and gain board certification. An optional elective third year of research may be scheduled after the two fully clinical training years for a clinically related project by agreement with and under supervision of a member of the radiation oncology physics faculty. The additional year is intended to provide clinically trained residents time to advance a translational research project, with consequent opportunities for accomplishments to support a career goal of being a clinician-scientist.



Training Curriculum

The mainstay of the curriculum is the instruction of residents by means of their performing clinical physics tasks under direct individual supervision of experienced mentors. Residents are afforded increased independence in performing these tasks, in so far as it has been demonstrated that they possess the capability of performing said procedures with reduced direct oversight. Mentors remain responsible for task completion, and in continuing with a defined task residents gain opportunities to learn more nuanced aspects of the subject. The training program consists of a sequence of 1-3 month clinical rotations, each organized around a particular topic, plus a continuing program of twice-monthly meetings that broadly range across specific topics in medical physics, such as AAPM Task Group reports. Each rotation is mentored by one or two board-certified physicists. To complete a rotation, the mentors must verify that residents have achieved defined knowledge goals and competencies.



Our department offers vast opportunities to advance translational research, with consequent opportunities for accomplishments to support a career goal of being a clinician-scientist.

Medical Physics Residency Program

Led by Amy Yu, PhD, Associate Professor of Radiation Oncology and Program Director, and Yu Gao, PhD, Associate Clinical Professor and Associate Program Director, our program is a two-year, CAMPEP accredited program emphasizing clinical competency and leadership in academic roles in the field of radiation oncology physics. We admit two new residents per year and have had 27 graduates of the program as of June 30, 2023. The program is comprised of 25 physics faculty, 10 dosimetrists, 8 radiation biology faculty, and 32 physicians.



Our team of expert
physicists, therapists, and
dosimetrists are here to
help you develop
successful knowledge and
skills independently and
gain board certification.

Applications

Applications for July 1st start date are due December 1st of the previous year.

- Applicants must have a Ph.D. degree or equivalent in physics, biophysics, medical physics, engineering, or a related field, and must have completed four graduate level didactic courses described in the AAPM Report Number 197S.
- Applicants must register with the National Matching Service (NMS) for Medical Physics and submit a complete application through the [AAPM Medical Physics Residency Application Program \(MP-RAP\)](#).
- Our NMS number is **10511**.





Stanford
MEDICINE

Radiation Oncology
Medical Physics



Facilities and Equipment

Stanford is committed to providing exceptional treatment with state-of-the-art technology:

- **Varian TrueBeam;**
- **Accuray Cyberknife**
- **ViewRay MRIdian**
- **RefleXion™ X1**
- **Varian Bravos & Varisource iX**
- **IntraOp Mobetron**
- **Varian Eclipse**
- **2 PET/CT** scanners dedicated to patient simulation, including a new 128-slice Siemens Biograph mCT (Somatom Definition AS+ CT) with 4D and CT-perfusion capabilities
- **3T MAGNETOM Skyra MR simulator**
- **RPM™ and AlignRT® motion-management systems**



Rotation Schedule

Rotation 1: Orientation; Simulation, Planning, and Treatment; Ethics; Accelerator Theory and Operation; Radiation Safety

Rotation 2: Linac Safety; Equipment QA; Patient-Specific QA; Shielding Calculations; Calibration Protocols

Rotation 3: 3D Treatment Planning; Basic Dosimetry

Rotation 4: IMRT and VMAT Planning; Chart Checking

Rotation 5: Clinical Translational Project

Rotation 6: CyberKnife Radiosurgery; Linac-based SBRT

Rotation 7: Special Procedures; TBI and TSEI; Protons

Rotation 8: Brachytherapy

Rotation 9: Imaging Motion Management[†]

Rotation 10: Community Practice

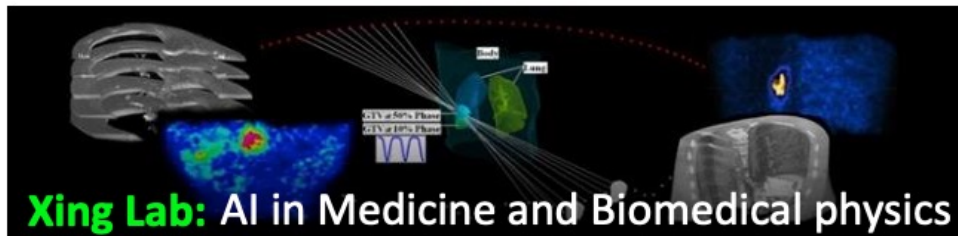
Rotation 11: Full Participation

Optional 3rd year: Research Year

Research Opportunities

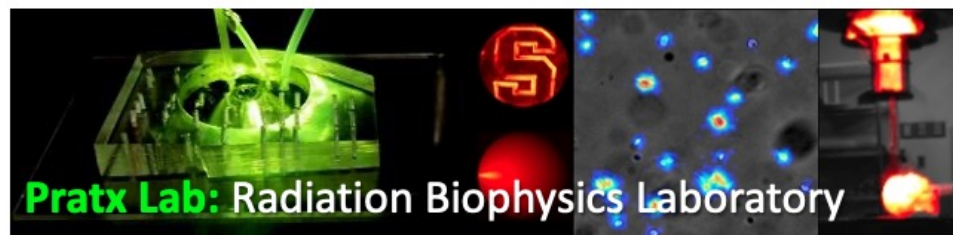
Explore, contribute, and learn at one of the world's premier research institutions. With state-of-the-art technologies, nationally and internationally recognized researchers, and a team of outstanding, interdisciplinary staff, the Radiation Physics Division stands at the forefront of scientific innovation and provides an extraordinary arena for career development and enrichment. Our vision is to be the world's premier program committed to excellence and innovation in clinical practice, scientific research, technological development, and education.

Fundamental Medical Physics Research Laboratories:



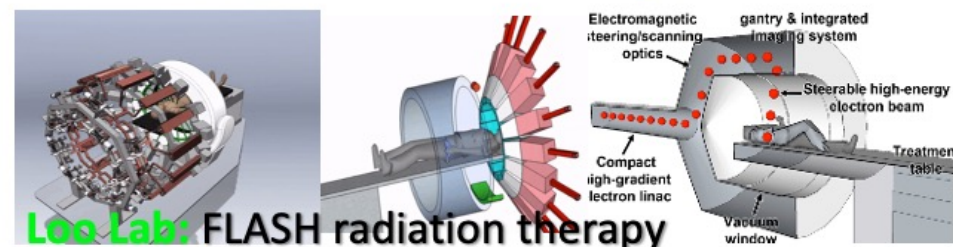
Xing Lab: AI in Medicine and Biomedical physics

This image shows a 3D visualization of a human head and neck with various anatomical structures highlighted in blue and red. A green beam of light is shown entering the head from the left, and a red dashed line indicates a path through the head. The text 'Xing Lab: AI in Medicine and Biomedical physics' is overlaid at the bottom.



Pratx Lab: Radiation Biophysics Laboratory

This image features a 3D model of a human head and neck with a green beam of light entering from the left. To the right, there are several small images showing a red 'S' logo, a blue and red particle detector, and a red and orange particle detector. The text 'Pratx Lab: Radiation Biophysics Laboratory' is overlaid at the bottom.



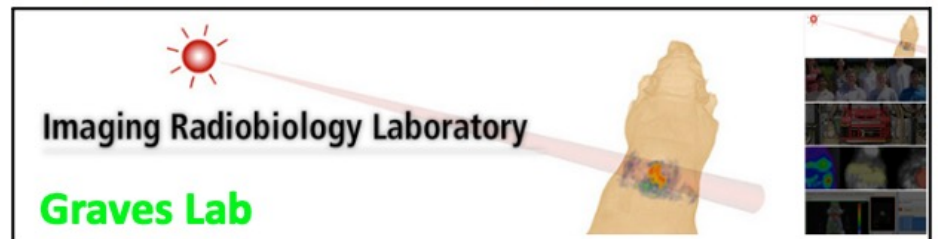
Loo Lab: FLASH radiation therapy

This image shows a 3D diagram of a radiation therapy system. It includes a 'Compact high-gradient electron linac', 'Electromagnetic steering/scanning optics', 'gantry & integrated imaging system', 'Steerable high-energy electron beam', 'Vacuum window', and 'Treatment table'. The text 'Loo Lab: FLASH radiation therapy' is overlaid at the bottom.



Imaging Systems for Radiotherapeutics Group
Systems and Applications for advancing radiotherapeutics clinical practice and research
Hristov Lab

This image shows a 3D visualization of a human head and neck with various anatomical structures highlighted in blue and red. A green beam of light is shown entering the head from the left, and a red dashed line indicates a path through the head. The text 'Imaging Systems for Radiotherapeutics Group' and 'Hristov Lab' is overlaid at the bottom.



Imaging Radiobiology Laboratory
Graves Lab

This image shows a 3D visualization of a human head and neck with various anatomical structures highlighted in blue and red. A green beam of light is shown entering the head from the left, and a red dashed line indicates a path through the head. The text 'Imaging Radiobiology Laboratory' and 'Graves Lab' is overlaid at the bottom.



Li Lab:

- Radiomics
- MRI RT Planning
- IGRT

This image shows two axial CT scans of a human head and neck. The text 'Li Lab:' and the list of research areas are overlaid on the right side.

Exchange Programs and Other Electives

- Gamma Knife at **UCSF** via the exchange program with our Bay Area sister institution
- **Proton** Therapy School at UPenn
 - Course registration and travel costs sponsored by the program
- **Clinical Translational Project** within Rotation 5
- Hands-on in-house **3D printing**
- **Firsthand** RefleXion, ViewRay and experience with new technologies

UCSF Medical Center



This is a unique opportunity to practice in a diverse, resource-limited environment, improve problem-solving skills, and foster an interest in expanding access to care for underprivileged communities.

International Rotation

- Offered to ONE senior resident or alternate
- 2-3 weeklong trip
- Time is split between Kenyatta National Hospital in Nairobi, Kenya, and Ocean Road Center Institute in Tanzania
- Program may add one or two more sites



Program Completion Requirements

The following must be completed over a period of 24 months:

- Complete all 11 clinical rotations, demonstrating clinical competency.
- Perform recurring clinical responsibilities, as they are assigned.
- Submit monthly reports/logs describing clinical activities to the program director and current rotation mentor for the 24-month period.
- Make three assigned presentations as in-service training (with training materials) or as research
- Regularly attend required clinical conferences, chart rounds and clinical physics group meetings.
- Attend departmental physics seminars.
- Complete all twice-monthly educational sessions with the program director.
- Successfully complete the following lecture-based courses:
 - 1) Radiation Therapy Physics (attend >80% of classes, score \geq 85% on Raphex exam)
 - 2) Radiology Physics (attend all classes, if available)
 - 3) Radiation and Cancer Biology (attend all classes, if available)
 - 4) Clinical Lecture (attend all classes, if available)
- Pass comprehensive oral examination (required completion of 50 % of items on the proficiency list before taking the comprehensive exam)
- Completion of requisite number of procedures as listed in the proficiency list reviewed bi-annually by steering committee.
- Submit one grant application during residency



Salary & Benefits Information

2022-2023

Menu

Effective: 9/5/2022

Year	Annual	Per Month
I	\$74,027.20	\$6,168.81
II	\$77,771.20	\$6,480.81
III	\$83,657.60	\$6,971.33
IV	\$88,400.00	\$7,366.53
V	\$93,953.60	\$7,829.32
VI	\$98,092.80	\$8,174.24
VII	\$103,604.80	\$8,633.57
VIII	\$108,326.40	\$9,027.03

Information on financial support including benefits is updated annually on the Stanford GME website. Med Physics residents begin at PGYII. Scan below to see other perks!



Other allowances: Housing: \$7,200/year Education: \$2,000/year Cell phone plan: \$1,000/year Moving: \$3,000, access to all Stanford campus athletic facilities, Caltrain Go Pass, Insurance: No premiums with Aetna plan. No coinsurance/copays for residents, fellows and their families at Stanford and Packard hospitals. Kaiser plan also available. Infertility and gender affirmation services available.

Alumni

Our program has admitted 32 applicants since 2005 and as of July 1st, 2023, will have 27 who have completed the program and 5 who are in training. Out of those 27 alumni, 25 are currently ABR certified and 1 is CCPM certification. All 27 are clinically employed and 24 also hold an academic appointment. Some of the employers include Varian Medical systems, Cedar-Sinai Medical Center, University of Washington, UCSD, UT Southwestern, MSK, UCSF, Sunnybrook, Rutgers and MD Anderson.



Testimonies

When asked how strongly they agreed or disagreed with their decision to choose Stanford University, this 2019 alumni stated “[I am] very, very happy in many, many ways; best and toughest 2 years of my life.”

[The program’s strengths is] the emphasis on the fundamentals of physics, in terms of thinking as a medical physicist, and approaching a clinical problem as a physicist, and communicating effectively with other team members.” -2020 Alumni Survey

“[The program] encourages residents to think critically about what they are doing and how they are doing it. Not just learning the motions. Also, excellent variety of equipment to gain experience.” -2021 Alumni Survey

“[One of the strengths of the program] is the flexibility to perform both clinical work and research.” -2021 Alumni Survey



Alumni Stats

Our program takes feedback from current and past graduates earnestly. We survey our graduates every winter to better understand the strengths and the weakness of the program. Responses remain confidential and reviewed by an internal committee. 2021 Alumni Survey results show that candidates are 100% pleased with their decision to choose Stanford University's Medical Physics Residency Program for their residency. Survey results also show that after completion of the program, residents strongly agree that the program prepared them to think and communicate professionally and independently.

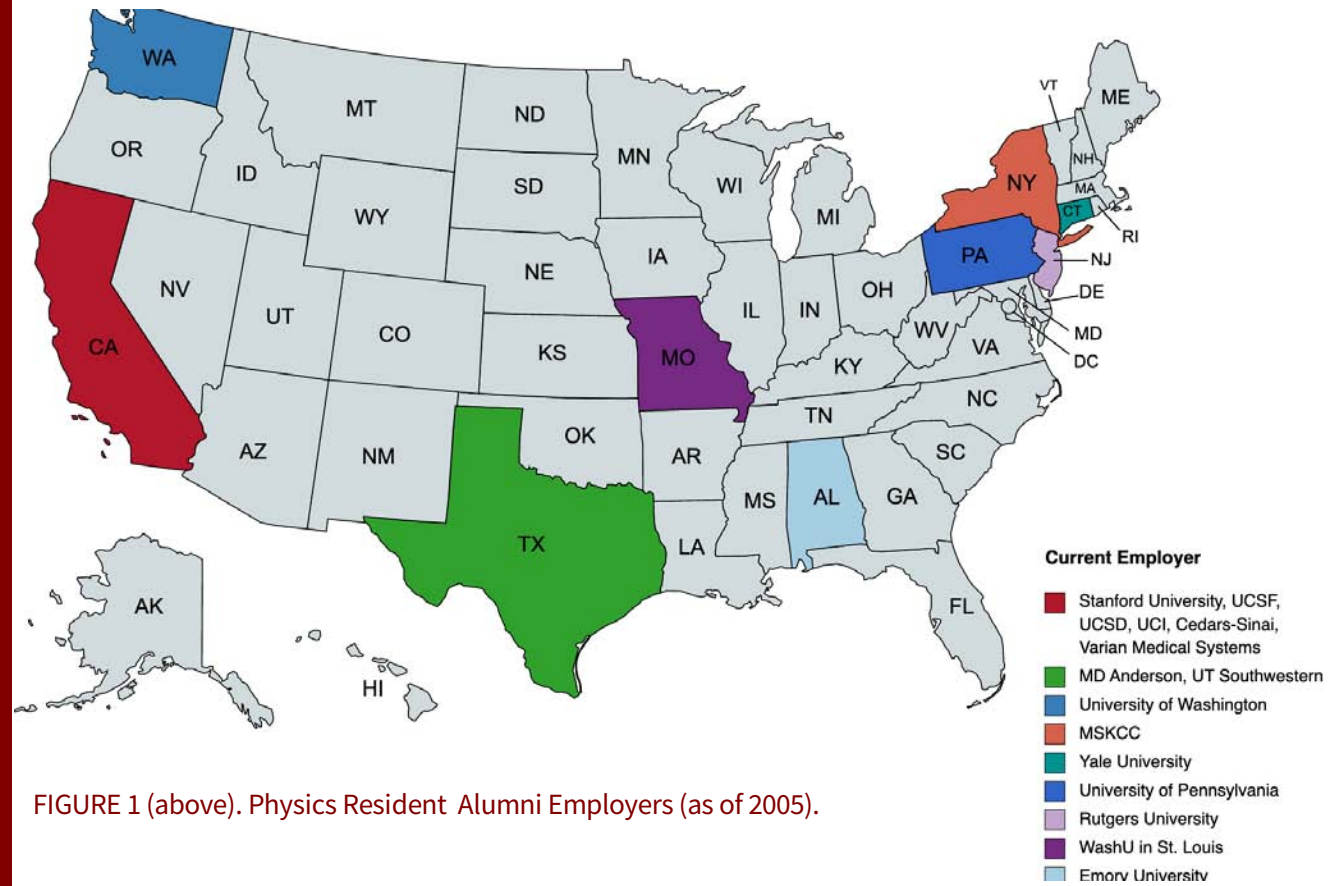


FIGURE 1 (above). Physics Resident Alumni Employers (as of 2005).

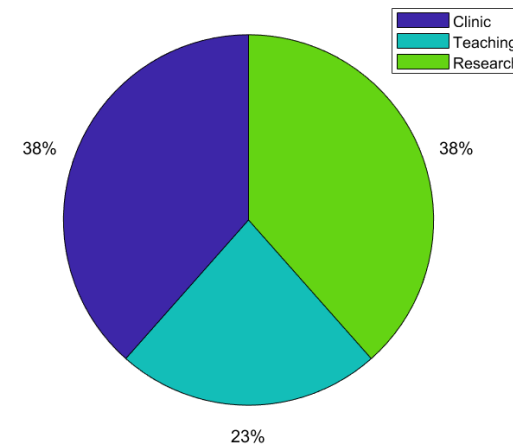


FIGURE 2 (above). Percentage of current practice distribution (as of July 2017)

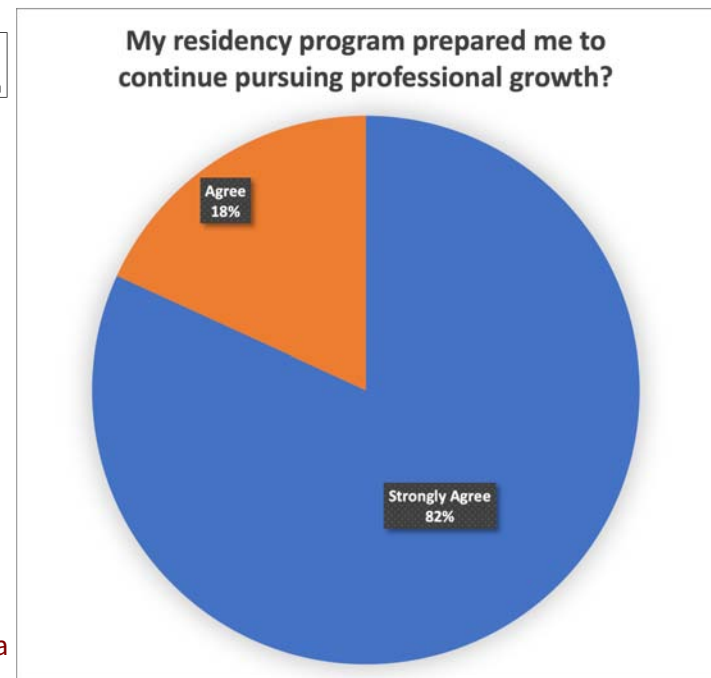


FIGURE 3 (right) 2021 Alumni Survey Data

Life in the Bay Area

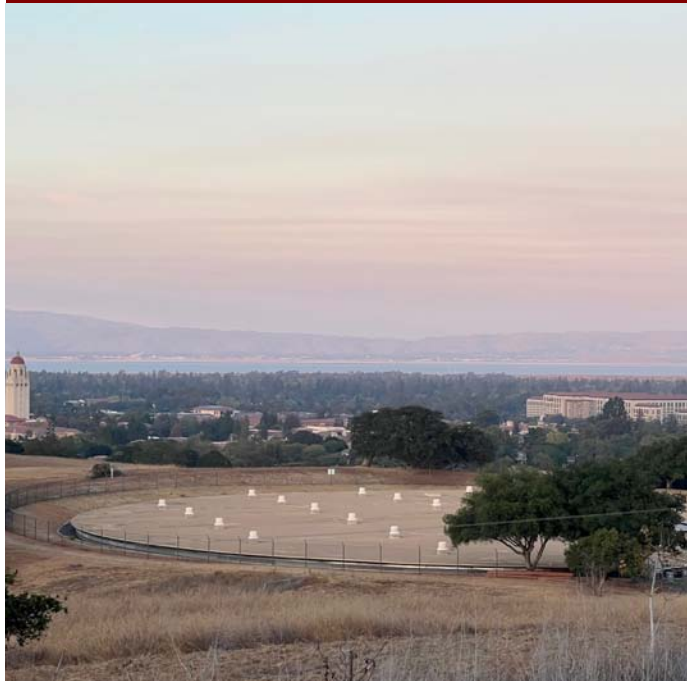
Known to be one of the best suburbs in the Bay Area, Palo Alto provides a safe, friendly environment for all its residents. **The city is more than 100 years old and is named after an astonishing 1,000-year-old coastal redwood tree that was along San Francisquito Creek.** Palo Alto is nicknamed the “Birthplace of Silicon Valley” and is best known for being home to many multi-billion-dollar technological companies. With pleasant weather, an active nightlife, and various outdoor activities, Palo Alto provides a comfortable culture and desirable lifestyle for all their residents.



Enjoy the clear blue beautiful skies in the sierras or the sunset skyline in the Pacific Ocean. Adventure is always a 30 min - 2 hour driving distance.

Campus Life

The School of Medicine's close ties to world-class hospitals and the Silicon Valley tech corridor creates a unique opportunity to merge research with health-care expertise to drive real-world innovation.





Work Hard. Play Hard.





Mission Statement

Mission

Creating and delivering the most innovative, equitable, environmentally sustainable, personalized care and education through compassion, cutting-edge technology, and transformative research.

Research

Advancing discoveries, promoting health equity and translating new knowledge in radiation therapy, radiation physics, and cancer biology in ethically responsible and environmentally sustainable ways.

Clinical Care

Eradicating cancer and other diseases and eliminating cancer healthcare disparities by providing the highest quality, compassionate, cutting-edge, personalized radiation therapy.

Education

Training the next generation of compassionate leaders in radiation oncology, biology, and physics to address the healthcare needs of diverse populations through innovation, personalized patient care and research.

Organization & Infrastructure

Fostering an environment and culture in which diversity is celebrated, and all faculty, staff and trainees are respected, included and empowered to achieve professional fulfillment.