Welcome

Welcome to the UC San Diego Department of Radiation Medicine and Applied Sciences (RMAS). On behalf the faculty and entire staff, we wish to extend a very warm welcome to you. We hope that you will find the interview day both informative and enjoyable. It is a great opportunity for you to meet our faculty and for us to get to know our future colleagues.

The last decade has witnessed tremendous growth and expansion of our clinical, research and education missions, including significant growth in our clinical and research faculty, the addition of multiple new clinical centers, and expansion of both our radiation oncology and medical physics training programs. We are very pleased that you will have the opportunity to experience our residency program and our department first hand.

Our residents work with a team of outstanding faculty and staff with diverse clinical and research interests who are committed to training future leaders in our field. They also benefit from the tremendous resources and facilities at UCSD and the Moores Comprehensive Cancer Center. As the only cancer center in San Diego County that is designated as “comprehensive” by the National Cancer Institute (NCI), we have active clinical programs in all major disease sites and attract patients from well beyond our region. We are a member of all major national cooperative groups including the NRG, Alliance, SWOG and the Children’s Oncology Group. Additionally, the UCSD School of Medicine is one of the top research medical schools in the United States and one of the largest recipients of NIH funding in the country.

In addition to the academic aspects, we are ideally located in La Jolla, California, minutes away from beaches, mountains and all of San Diego’s vibrant cultural and recreational activities.

Please enjoy your visit, and we wish you the best for a successful career!

Most sincerely,

John Einck MD
Professor and Director
Residency Program

A J. Mundt MD FASTRO FACRO
Professor and Chair
General Interview Agenda

The interview day begins at 7:45 a.m. in the Radiation Oncology Conference Room with breakfast and an introduction by Drs. Arno J. Mundt (Department Chair) and John Einck (Program Director). Interviews are scheduled throughout the day and typically last 20 minutes. There will be a tour of the La Jolla facility as well as presentations on radiation technologies and research opportunities. At lunch time, you will have an opportunity to meet our residents and exchange information and ask questions.

Residency Selection Committee:

Arno J. Mundt, MD, FACRO, FASTRO
Professor and Department Chair,

John Einck, MD, FACRO
Professor and Assistant Vice-Chair Education,
Residency Program Director
GU Cancers Section Chief

Jyoti Mayadev, MD
Associate Professor
GYN Cancers Section Chief

Ajay Sandhu, MD
Professor and Assistant Vice-Chair VA Affairs,
Thoracic Oncology Section Chief

Loren Mell, MD
Professor and Vice-Chair Clinical & Translational Research,
Director, Center for Precision Radiation Medicine
Head & Neck Cancer Section Chief

James Murphy, MD
Associate Professor
Director, Health Outcomes Research Program
GI Oncology Section Chief
The University of California was chartered in 1868. As a whole, it is one of the largest Universities in the world with over 250,000 students and employs approximately 165,000 faculty, staff and academics statewide. The UC system is comprised of 10 separate campuses: Berkeley, Davis, Irvine, Los Angeles, Merced, Riverside, San Diego, San Francisco, Santa Barbara and Santa Cruz. In 2017, the total University endowment exceeded $14B.

Each campus boasts a unique environment, and a variety of achievements, honors and academic disciplines. There are 5 medical centers in the UC system: Davis, Irvine, Los Angeles, San Diego and San Francisco. A medical center in Riverside is under development. The UC Medical Centers support the clinical teaching programs of the medical and health sciences schools and receive more than 150,000 inpatient discharges,
275,000 emergency room visits and more than 3.6 million outpatient visits per year. Collectively, these centers comprise the largest health care system in California.

University of California San Diego

UC San Diego occupies 1200 acres along the Pacific coast in La Jolla, California. One of the premiere campuses of the UC system, UC San Diego is also one of the youngest (founded in 1960). The first graduate student was admitted in 1960 and the first undergraduate in 1964. UC San Diego is thus one of the youngest major Universities in the United States.

The focus of UC San Diego has been on science and engineering. Over its short history, 27 faculty members have awarded Nobel Prizes, including 3 in Medicine and Physiology: George Palade, Renata Dulbecco and Sydney Brenner. Roger Tsien PhD, a member of the UCSD Cancer Center and collaborator of Department Basic Scientist Dr. Sunil Advani, was the most recent Nobel Laureate receiving his Prize in Chemistry in 2009.

UC San Diego is affiliated with several prestigious research neighbors, including the Salk Institute, the Sanford Burnham Institute and the Scripps Research Institute. The collective biomedical facilities are known in San Diego as “Bio Tech Beach”. The Salk Institute is pictured below.

In 2013, the UC San Diego Moores Cancer Center, the Salk Institute, and the Burnham Institute formed the “San Diego National Cancer Institute Cancer Centers Council”. This council brings together a leading NCI-designated comprehensive cancer center with two of the seven NCI-designated basic science cancer centers in the country.
The UC San Diego annual research funding currently exceeds $1.2 billion, making UCSD one of the highest funded research universities in the country.

UC San Diego Has Record-setting Year with $1.2B in Research Funding
For the past three years, UC San Diego has seen an increase in research contracts and grants, making it 7th in the nation in sponsored research.

UCSD has received multiple prestigious awards. In 2012, Shu Chien PhD was awarded the National Medal of Science from President Obama. The prior year, Chancellor Marye Ann Fox also received a National Medal of Science award, making UC San Diego the first University ever to receive back-to-back National Medals of Science.

UC San Diego has been named one of the top-ranked “Happiest” colleges as well as a top-ranked college for nightlife, organizations, retention, and sunny days. UC San Diego has also been named one of the Top Green Universities in the world due to its extensive initiatives in energy preservation and conservation. The University has also been recognized for its exceptional in fostering diversity.
Several years in a row, UC San Diego has even been named a top-ranked “Surf” University in the country. This recognition was based not only on its proximity to world-class beaches and surfing but also to its commitment to the “academics” of surfing. The Department of Physics offers a well-attended *Physics of Surfing* Class.
The UCSD School of Medicine currently enrolls 120 students per year and is consistently ranked among the top American Medical Schools by the *U.S. News & World Reports*. Despite its short history, the UCSD School of Medicine is consistently ranked among the Top 15 Research Medical Schools and the Top 15 NIH funded Medical Schools in the country.

**UCSD Health System**

The UCSD Health System is a multiple hospital system, with two main medical centers in Hillcrest (near Downtown) and La Jolla, and multiple affiliated hospitals and outpatient clinics throughout the greater San Diego region.

The flagship Jacobs Medical Center (see photo) is located in La Jolla and opened in 2016. Named after the founder of Qualcomm, the 500,000 square foot (245 bed) Medical Center consists of three separate hospitals including a dedicated Cancer Hospital and a Center for Advanced Surgery.

The Health System also includes the 422-bed, 11 floor Hillcrest Medical Center is located in the Hillcrest neighborhood near downtown San Diego.

Plans are currently underway to replace Hillcrest Medical Center with a new state-of-the-art Hospital and to expand the Hillcrest campus to include an outpatient Cancer
Center consisting of infusion, radiation oncology including a brachytherapy suite and inpatient/outpatient operating rooms.

The La Jolla Medical Campus is rapidly growing and consists of a complex of facilities, including inpatient hospitals, outpatient clinics and research buildings.

Spanning two sides of the Interstate 5 freeway, the Medical Campus extends from the La Jolla Allergy and Immunology Institute (LJAI) to the Sanford Consortium for Regenerative Medicine Building overlooking the Pacific Ocean.

The East Campus is comprised of the Jacobs Medical Center, the Moores Cancer Center and adjacent Radiation Oncology facility, Koman Family Outpatient Clinics, Shiley Eye Institute, LJAI, and the Sulpizio Family Cardiovascular Center. The West Campus (across I-5) consists of the Medical School and multiple research institutes including the Salk Institute, the Burnham and the Sanford Regenerative Medicine Institute.
The Health System is also affiliated with multiple Medical Centers throughout the greater San Diego Region including:

Rady Children’s Hospital

VA San Diego Medical Center

Eisenhower Medical Center
Rancho Mirage, California

Tri-City Medical Center
Vista, California
Centers and Institutes

Several other facilities are located on the UC San Diego campus adjacent to the Medical Center in La Jolla. These include several research facilities where many cancer center researchers have labs. The 300,000 square foot Altman Clinical and Translational Research Institute (CTRI) opened earlier this year (photo right). The Department of Radiation Medicine and Applied Sciences Research Faculty have offices in this building, which we will be visiting during the interview day.

Other new building projects include the Sanford Consortium for Regenerative Medicine and the Sulpizio Cardiovascular Center. Brachytherapy (eye plaques) is commonly performed for choroidal melanoma in the Shiley Eye Institute adjacent to the Cancer Center.

UCSD recently opened the Center for Novel Therapeutics, adjacent to the Moores Cancer Center (right). Effectively a basic science extension of the Cancer Center, approximately one-half of the building will be occupied by local biotech companies that work closely with the UCSD Cancer Center.
Adjacent to the Moores Cancer Center, the new Koman Outpatient Pavilion houses our dedicated Breast Center as well as the Urology Institute. The building also houses a new outpatient surgery center.

Moores Cancer Center

The Rebecca and John Moores NCI-Designated Comprehensive Cancer Center is a 270,000 square foot state-of-the-art facility, one of only 42 NCI designated cancer centers in the country.

As such, it ranks among the top centers in the nation in terms of clinical and basic science research, providing advanced patient care and serving the community through education and outreach programs. Named after John Moores, the former owner of the San Diego Padres, the Moores Cancer Center is home to 300 individual UCSD faculty from over 23 departments, divisions, and local institutions, including Rady Children’s Hospital. Over 300 clinical trials are currently open at the Cancer Center including Radiotherapy Oncology Group (RTOG) trials.

The UCSD Moores Cancer Center is under the Directorship of Scott Lippman MD (left), an internationally-recognized medical oncologist formerly the Chair of the Department of Head/Neck and Thoracic Oncology at the MD Anderson Comprehensive Cancer Center.

The Cancer Center is internationally-known for exceptional basic science, with 16 cancer center members elected to the National Academy of Sciences (NAS) (UCSD is ranked 7th in the country for NAS membership).
Department of Radiation Medicine and Applied Sciences

The Department of Radiation Oncology was founded in 2006 with the recruitment of Arno J. Mundt MD FACRO FASTRO (left) from the University of Chicago, an internationally-known academic radiation oncologist focusing on the application of novel technologies particularly in the treatment of gynecologic cancers. Today, the department is home to over 60 clinicians and researchers. In 2012, it officially changed its name to the Department of Radiation Medicine and Applied Sciences (RMAS), recognizing the clinical and research sides of the field.

RMAS Faculty

A total of 63 individuals hold academic appointments within RMAS (Appendix A). Core faculty consist of 27 Radiation Oncologists and 18 Medical Physicists based in La Jolla and centers throughout the greater San Diego region. The Department is divided into 4 main units: Clinical Radiation Oncology, Clinical & Translational Research, Medical Physics and Administration. Senior leaders from these four units serve on the RMAS Council which provides input to the Chair. The RMAS Council represents a diverse cross section of the department, with both clinical and research faculty, different practice locations, ranks and genders.

RMAS Council (2019-2020)
The RMAS Shared Governance model includes faculty committees which are tasked with the day-to-day operations and oversight of the Department and its faculty. Committees oversee such issues as Merits/Promotions, Faculty Compensation, Quality & Safety, etc. Several Committees focus on Residency Issues including Program Evaluation, Didactic Curriculum, and Residency Selection. Residents are able to serve on multiple committees.

**Treatment Facilities**

The Department currently consists of 7 treatment centers in San Diego and the region including 6 photon therapy centers (La Jolla, Encinitas (Coastal North County), 4S Ranch (Inland North County Rancho Bernardo), South Bay, El Centro and Rancho Mirage) and an affiliated state-of-the-art proton center (Mira Mesa).

*The main center is located in La Jolla with satellites in North County (Encinitas), In Land North County (4S Ranch), and South Bay (Eastlake).*

The Department is acquiring multiple new centers throughout the region through joint ventures, partnerships and new constructions. Several regional photon centers are currently operating: one in Rancho Mirage (near Palm Springs) and one in El Centro. Planning is also underway for the development of a new center in North County, San Diego and in Downtown.
La Jolla (Main Center)
The La Jolla facility consists of administrative space, faculty offices, research space, and clinical space on the first floor of the Moores Cancer Center. This includes a dedicated brachytherapy suite, wide bore CT simulator, and 3Tesla MRI, as well as a conference center. Adjacent to the Cancer Center is a 16,000 square foot departmental expansion consisting of additional clinical and administrative space including faculty offices, a PET/CT scanner, and a dosimetry suite. In La Jolla, there are 4 linear accelerators and a HDR Brachytherapy Suite.

The La Jolla Facilities offer patients all the cutting-edge technologies including Varian True-Beam and Halcyon accelerators and AlignRT Image-Guidance (upper left).

Satellite Centers
The current San Diego county photon satellites (Encinitas, South Bay and 4S Ranch) are state-of-the-art facilities equipped with new Varian accelerators (1 Encinitas, 2 South Bay and 1 4S Ranch). The South Bay facility also has a dedicated Electronic Brachytherapy (Xoft) Suite.
Encinitas (middle) and South Bay (right) Radiation Oncology treatment centers. The patient waiting room at the new In-Land North County treatment facility in 4S Ranch (left).

The California Proton Therapy is an over 100,000 square foot facility in nearby Mira Mesa. This $225M state-of-the-art facility consists of 5 treatment rooms including 3 gantry and 2 fixed beam rooms, making it one of the largest proton treatment centers in the world. Our Proton Center is the first in the United States to offer patients access to novel Varian proton technology. The Varian ProBeam system is a revolutionary proton therapy approach with capabilities similar to the TrueBeam system. The Varian Dynamic Peak technology was specifically designed for pencil beam scanning used in proton therapy. The center also includes CT and MRI diagnostic imaging. There are 3 full time faculty members at the proton center and several faculty from other sites who spend time at the facility.

UCSD recently formed a relationship with Eisenhower Medical Center in Rancho Mirage, CA including Eisenhower Bighorn Radiation Oncology Center. With 2 physicians and 2 linear accelerators this facility is one of the premiere treatment centers in the desert. There are not yet plans for residents to rotate at this facility, but discussions are underway.

Right: Eisenhower Bighorn Radiation Oncology infusion center, linear accelerator, and lobby.
UCSD also has a partnership with the Imperial Valley Cancer Center in El Centro, California. This is the only radiation therapy facility in the Imperial Valley and is approximately 1 ½ hours from San Diego. The site has a single linac and 2 physicians.

Clinical Programs
The Department offers patients access to cutting-edge technologies for adult and pediatric tumors, including stereotactic radiosurgery, stereotactic body radiation therapy, IMRT, IGRT and proton therapy. A wide variety of brachytherapy programs are also available for breast, gynecologic, prostate, ocular and lung cancers. Department clinicians attend 25 tumor boards at the main campus, satellites and affiliates hospitals, including the VA, Rady Children’s Hospital and Kaiser Permanente.

Conference | Frequency | Faculty Representative(s)
--- | --- | ---
**UCSD Moores Cancer Center**
Breast Cancer | Weekly | Yashar, Einck, Mayadev, Rash
Brain Tumor | Weekly | Hattangadi-Gluth, Simpson, Seibert
Gynecologic Oncology | Bi-Monthly | Mayadev, Yashar, Mell
Gastrointestinal (GI) Tumors | Weekly | Murphy, Simpson
Head and Neck Cancer | Weekly | Mell, Sanghvi, Sharabi, Urbanic, Rahn
Genitourinary (GU) Cancers | Bi-Monthly | Einck, Sandhu, Rose, Sharabi
Leukemia/Lymphoma/BMT | Weekly | Sanghvi, Bruggeman
Soft Tissue/Bone | Monthly | Einck
Liver | Weekly | Simpson
Lung | Weekly | Sandhu, Urbanic, Sharabi
Molecular | Weekly | Sharabi

**Rady Childrens Hospital**
General Tumor Board | Bi-Monthly | Macewan
Brain Tumors | Monthly | Macewan

**Encinitas**
Breast Cancer | Weekly | Rash, Urbanic
VA Hospital
- General Weekly Sandhu
- Lung Cancer Weekly Sandhu, Urbanic
- Liver Monthly Simpson

Kaiser Permanente Hospital
- General Tumor Board Weekly Advani, Murphy, Rahn, Sharabi
- Breast Cancer Weekly Yashar, Einck, Mansy, Rash
- Head and Neck Cancer Bi-Weekly Mell, Sanghvi
- Pulmonary Bi-Weekly Sandhu

South Bay
- GU Bi-Monthly Rahn, Advani
- Scripps Chula Vista Bi-Monthly Mansy, Rahn

Other
- Palomar Hospital Weekly Hoopes
- Proton Center Weekly Urbanic, Einck, Macewan
  Rossi, Grover, Chang

UCSD Radiation Oncology offers numerous cutting-edge clinical programs, many not available elsewhere in the region. Several clinical programs are highlighted below:

FRAMELESS BRAIN STEREOTACTIC RADIOSURGERY
The stereotactic radiosurgery (SRS) program at UCSD is a joint program between Radiation Oncology and Neurosurgery. Initially using a customized bite-block and infrared-based localization, Department physicians have tremendous experience with frameless SRS in patients with malignant and benign CNS tumors and staff two multidisciplinary clinic with UCSD and Kaiser Neurosurgeons.
Attention has recently turned to the development of a novel frameless bite block-less SRS approach using 3-D surface video cameras. The 3D surface of the patient is monitored in real-time. UCSD was the first center in the world to offer this novel approach.

BRACHYTHERAPY
UCSD Radiation Oncology has brachytherapy programs in multiple disease sites, including breast cancer, prostate cancer, gynecologic tumors, lung cancer and ocular tumors.

Dr. Catheryn Yashar, Chief of the Breast Oncology Service, and Medical Physicist Daniel Scanderbeg, PhD, were pioneers in the treatment of early stage breast cancer patients using the novel brachytherapy SAVI device.

Another tumor frequently treated with brachytherapy at UCSD is prostate cancer. John Einck MD and Brent Rose MD work closely with medical physicists Drs. Dan Scanderbeg and Derek Brown on these procedures. In 2017 nearly all eligible prostate cancer patients are considered for brachytherapy either as monotherapy or as a boost for high risk patients.

Opening of the expanded South Bay facility in 2015 added considerable capacity to the Xoft electronic brachytherapy skin cancer treatment program in South Bay. Currently, over 1200 electronic brachytherapy treatments are delivered annually at that facility. Expansion of the program to include gynecologic cancer is planned for the coming year.
IGRT AND IMRT IN GYNECOLOGIC CANCER

UCSD physicians have a long history and experience applying novel radiation approaches in gynecologic cancers. Dr. Arno Mundt pioneered the use of IMRT in gynecology patients over a decade ago. In a series of outcome series, he demonstrated that IMRT was highly effective at reducing the risk of long term side effects in these women.

Illustration of the target volume (left) used in a cervical cancer patient undergoing IMRT and the treatment plan (right) in this patient.

Drs. Catheryn Yashar and Dr. Loren Mell have built on this experience by incorporating novel imaging techniques for treatment planning and in-room imaging for optimizing treatment delivery. Drs. Mundt, Yashar and Mell are frequent invited lecturers on novel radiation technologies in cervical cancer and other gynecologic tumors at national and international symposia and conferences. In addition, both Drs. Yashar and Mell serve on the editorial board of the *International Journal of Radiation Oncology, Biology and Physics*. Dr. Jyoti Mayadev has recently joined the faculty and currently serves as the Chief of the Gynecologic Oncology and GYN Brachytherapy Service.

PEDIATRIC ONCOLOGY

As the sole provider of radiation oncology services to Rady Children’s Hospital, the UCSD Radiation Oncology Department treats all children undergoing radiotherapy in the San Diego region.

In collaboration with medical oncologists and surgeons at Rady Children’s Hospital, Dr. Iain Macewan, Chief of the Pediatric Oncology Service, is committed to implementing novel radiation technologies in children including proton therapy. UCSD pediatric patients are treated at both the Moores Cancer Center and the California Proton Center in San Diego.
PROTON THERAPY

In 2013, UCSD formed a partnership with the California Proton Center (formerly Scripps Proton Therapy Center). Currently 8 UCSD radiation oncologists are credentialed at the Proton Center and all Scripps Proton Therapy physicians and physicists have department faculty appointments.

Under the direction of Carl Rossi MD, Medical Director of the Center, the center opened in later 2013 in near-by Mira Mesa and includes 5 treatment rooms (3 gantry, 2 fixed beam), making it one of the largest proton therapy centers in the United States. In addition, there are ancillary MRI and CT diagnostic imaging facilities on site. The UCSD-Proton Partnership includes rotations for all the UCSD radiation oncology and medical physics residents and joint research programs.

VETERINARY ONCOLOGY COLLABORATION

The department is currently establishing clinical, research and educational collaborations with veterinary oncologists at the Angel Care Cancer Center in San Diego. To this end, faculty appointments have been proposed for two academic veterinarians specializing in oncology: Gregory Ogilvie DVM and David Proulx DVM. Joint educational programs, research grants and clinical trials are planned.
Radiation Oncology facilities at Angel Care Cancer Center: a cat undergoing radiation therapy under general anesthesia (left) and a Varian linear accelerator. Stereotactic Radiosurgery on a dog (left) with a paranasal sinus tumor (right)

STEREOTACTIC BODY RADIATION THERAPY (SBRT)
SBRT is a common treatment approach at UCSD in a variety of tumor sites including lung, spine and liver tumors. All patients with lung and liver SBRT are planned using 4DCT and frequently treated with respiratory-gating. In 2018, over 2000 SBRT treatments were performed in the Department.

Research
The RMAS Department Research Programs are grouped together under the Center for Precision Radiation Medicine (CPRM). With the opening of the new Altman Clinical Translational Research Institute in 2016, the CPRM is located on the 4th floor. Additional wet and dry lab space are located with the Moores Cancer Center Building.

The Department is committed to the success of the Research Faculty and the CPRM and thus provides the Center with considerable annual infrastructure and staff support. In addition, the
Department funds 4-5 Seed Grants per year (total funding $300K), which are available to junior faculty and residents.

CPRM Research is divided into 5 main areas: Health Outcomes, Technology, Imaging, Basic Science, Clinical Trials and Systems Engineering & Design. Several programs and research faculty are highlighted below.

Basic Science Programs
The CPRM is home to 3 basic scientist researchers: Sunil Advani MD (Program Director), Andrew Sharabi MD PhD and Milan Makale PhD. Basic Science faculty oversee the Radiobiology Curriculum for the Radiation Oncology and Medical Physics Residents.

A long-time focus of the Advani Lab has been on the understanding and overcoming of tumor radio-resistance. Resistance of tumors to radiotherapy remains a formidable challenge limiting treatment efficacy. An R-01 funded tenured faculty, Dr. Advani and his colleagues have focused on cell signaling pathways involving the on a PAK-RAF signaling axis. They recently demonstrated that non-canonical, kinase independent functions of RAF mediates cell cycle progression and radio-resistance through phosphorylation of CRAF at serine 338 by PAK1.

In parallel, the Advani Lab is developing tumor targeted delivery approaches to ultra-potent tumoricidal drugs that have the dual advantage of also radio-sensitizing. His group was the first to identify that the anti-tubulin drug monomethyl auristatin E (MMAE) is a potent radio-sensitizer when compared to clinically used radio-sensitizers such as cisplatin or taxanes. A patent for the potential commercialization of the discovery and mechanistic understanding of MMAE based radio-sensitization.
Andrew Sharabi MD PhD is focused on elucidating fundamental interactions between radiation and the immune system. Following the MD PhD program at Baylor in Immunology, he completed his Radiation Oncology residency at Johns Hopkins. He has published extensively on how radiation can augment immunotherapy and is currently the principal investigator on a novel randomized trial evaluating the benefit of SBRT in patients undergoing immunotherapy. An R-01 funded researcher, he also serves as a Co-Investigator on a U-01 Moonshot Grant focused on immunotherapy in head/neck cancer.

Imaging Research
Multiple RMAS Research Faculty are focused on novel imaging research, including Jona Hattangadi-Gluth MD (Program Director), Tyler Seibert MD PhD, Brent Rose MD and Loren Mell MD.

A major focus of the Hattangadi-Gluth Lab is on the use of advanced MRI techniques to improve the treatment of brain tumors and the utilization of novel imaging biomarkers to measure response to radiotherapy. An R-01 funded researcher, Dr. Hattangadi-Gluth is currently prospectively following brain tumor patients on a longitudinal study of advanced diffusion imaging. In collaboration with Carrie Macdonald PhD, a Professor in the Department of Psychiatry who holds a Joint Appointment in RMAS, the trial includes serial cognitive testing of all patients.

Brain white matter tractography comparing automated (above left) and manual (above right) methods in a brain tumor patient receiving radiotherapy
A recent recipient of a prestigious DOD K Award, **Brent Rose MD** is evaluating novel MR imaging approaches in patients with lung cancers. Tyler Seibert MD PhD is performing a whole-body MR study in prostate cancer using novel diffusion imaging.

**Health Outcomes Research**

Multiple RMAS faculty perform Big Data Health Outcomes Research including **Jim Murphy MD** (Program Director), and **Brent Rose MD**.

The focus of the Murphy Lab is on optimizing quality of care, enhancing provider education, eliminating health disparities, as well as health economics research. He oversees a health outcomes research group that consists of post-docs, graduate students, medical research residents, and medical students. He has received extramural grant funding from various organizations including ASTRO, NCCN, ASCO, AHRQ, and the NIH. Ongoing collaborations include partnership with epidemiologists, biostatisticians, health services researchers, and clinicians from across UC San Diego and other institutions around the country. His research focus extends into the classroom, and within the University he teaches three health services research courses, and serves as the health services research module director for our CREST/MAS graduate program. He is a recipient of a prestigious R-18 Grant focused on improving physician contouring.

*eContour is an educational interactive website (eContour.org) created by Jim Murphy and RMAS colleagues.*

The Rose Lab focuses on evaluating outcomes of Veterans Affairs patients using the VA Informatics and Computing Infrastructure (VINCI) database. Using this data Dr. Rose has investigated the use of definitive radiotherapy in clinically node positive prostate cancer patients, the association of ADT with dementia as well as using a single three month post-treatment PSA level as a biomarker for radiation treatment response.
Clinical Trials

Three RMAS faculty are involved with clinical trials in a wide variety of disease sites: James Urbanic MD (Program Director), Jyoti Mayadev MD and Loren Mell MD.

Dr. Urbanic is actively involved in national cooperative group trials sponsored by the Alliance and NRG Networks. He serves as the PI (or co-PI) of multiple cooperative group trials. He has had two notable projects finish in the past year. He was study chair of CALGB 31102 which was a multi-institutional Phase I trial of hypofractionated radiotherapy combined with chemotherapy for locally advanced lung cancer.

Drs. Loren Mell and Jyoti Mayadev are leaders in the NRG Cooperative and have served as the Radiation Principal Investigator on multiple trials focused on Head/Neck and Cervical Cancers. Recently, Dr. Mayadev was named co-chair of the NRG Cervix Cancer Committee.

A special focus of Dr. Mell’s group is on studies aimed at improving the efficiency of clinical trials conducted in patients at risk for competing events. His group has developed a novel statistical approach called generalized competing event (GCE) regression for this purpose. This model improves stratification of patients according to the ratio of the hazard for cancer mortality to the hazard for overall mortality (ω ratio). Optimizing the ω ratio can lead to more efficient clinical trial designs, by reducing the incidence of competing events that tend to reduce statistical power, and by increasing the concentration of the treatment effect on cause-specific events.

Technology Research

Multiple RMAS Medical Physics faculty have active research labs: Kevin Moore PhD (Program Director), Casey Bojechko PhD, Sandra Meyers, Kelly Kisling PhD, Xenia Ray PhD and Vitali Moiseenko PhD.
Recruited from Washington University in 2011, **Kevin Moore PhD** is an R-01 researcher whose lab focuses on automated planning (Knowledge Based Planning). This approach uses advanced statistical learning techniques to make quantitative plan quality assessments for the future based on prior clinical experience. This work has resulted in two patent filings, one commercially released software product (Varian’s *RapidPlan*™), and has spawned a whole new sub-field of medical physics related to the application of ever more sophisticated patient-specific predictions in the service of automated treatment planning.

**Systems Engineering & Design**

RMAS Faculty **Todd Pawlicki PhD** and **Arno J. Mundt MD** (Program Co-Directors) have teamed up with **Don Norman PhD** and colleagues from the UCSD Design Lab to fundamentally re-think the practice and delivery of radiotherapy.

A primary focus of this group is to re-think many aspects of Radiation Oncology including Peer Review and Quality Assurance using Human-Centered Design (a field invented by Don Norman) and non-linear design hazard approaches. The author of the New York Times bestseller the *Design of Everyday Things*, Dr. Norman brings a unique perspective to re-designing healthcare processes.
Education

As the long-time residency program director at the University of Chicago, Dr. Mundt was committed to establishing a radiation oncology residency program at UCSD upon his arrival. Moreover, as a member of the national accreditation committee for medical physics residency programs, he was also committed to developing a medical physics residency program at UCSD. The first physics resident was admitted in July 2007. The current physics residents are:

Robert Kaderka PhD, Derek Brown PhD (Program Director), Tia Plautz PhD, Kristin McConnell PhD, Jennifer Steers PhD, Titania Juang PhD (Associate Program Director)

The application for a radiation oncology residency program was approved in September 2010 with a total complement of eight residents. In 2014, the number was increased to 12. Dr. Einck, who previously served as the Residency Program Director at the University of Washington, is the Residency Program Director.

In 2010 John Einck MD (left) was named Radiation Oncology Residency Program Director. In 2015, Derek Brown PhD was named Program Director of the Physics Residency.
Jim Murphy MD (left) serves as the Associate Director of the Radiation Oncology Residency Program as well as the Director of Medical Student Education. Titania Juang PhD (right) is the Associate Director of the Medical Physics Residency Program.

OUR RESIDENTS

Front Row left to right: Whitney Sumner MD, Michael Sherer MD, Karen Tye MD, Minh Huynh-Le MD, Christine Feng MD, Gretchen Hermann MD, Leith Hathout MD
Back Row left to right: Lucas Vitzthum MD, Michael Connor MD, Casey Williamson MD, John Einck MD (Program Director), Chris Straka MD, Aaron Simon MD PhD
Not pictured: Xenia Fave PhD, Everardo Flores-Martinez PhD, Christine Feng MD

Our Incoming Residents (2020).

Asoni Lui MD PhD
Kripa Guram MD
Austin Hopper MD
Radiation oncology faculty are very involved with medical student education and oversee multiple courses including the fourth-year clerkship, the third-year selective rotation and two research electives. Radiation oncology is part of the second-year curriculum as well.

Faculty members also participate in national education programs for radiation oncologists and medical physicists, sponsored by ASTRO and AAPM. Faculty education efforts even include yearly educational programs for San Diego High School students at a variety of schools. Each year, Dr. Yashar provides lectures and tours of the department to high school girls interested in careers in medicine and science as part of the BE WISE (Better Education for Women in Science and Engineering) Program.

In 2010, the department launched the UCSD Radiation Oncology Learning Center offering e-learning classes on a variety of cancer topics and treatment procedures to physicians and physicists worldwide. Online classes are currently available on SBRT, SRS and paperless technologies.
Residency Program Overview

Mission Statement
The mission of the Radiation Oncology Residency Program in the Department of Radiation Medicine and Applied Sciences at the UC San Diego is to:
1. Educate and train residents to be skillful in the practice of clinical radiation oncology and to be caring and compassionate in the treatment of their patients
2. Expose residents to the practice of academic radiation oncology, including clinical, technologic and biologic research

All requirements of the residency program are in accordance with the requirements of the Accreditation Council for Graduate Medical Education (ACGME).

These requirements are on file and available for review in the residency coordinator’s office. The policies set forth in this manual are supplemental to the institutional policies of the UCSD Graduate Medical Education Office as specified in the UCSD House Officer Policy and Procedure Document.

Duration and Scope of Training
Resident training in radiation oncology consists of five years of accredited, clinically-oriented graduate medical education.

The initial postgraduate year (PGY-1) must be spent in an accredited internship in internal medicine, family practice, obstetrics and gynecology, surgery or surgical specialties, or in a transitional year program. The PGY-1 year must include a minimum of nine months of direct patient care in medical and/or surgical specialties other than radiation oncology. The UCSD Radiation Oncology Residency Program does not sponsor a PGY-1 year. All residents entering the program are thus responsible for obtaining, and successfully completing, an internship at an accredited program.

The PGY-1 year is followed by four years focused on radiation oncology. During this time, residents must complete a minimum of 36 months of clinical radiation oncology training unless they are on the Holman Research Pathway.
At UCSD residents are offered a full 12 months devoted to clinical, technologic and/or basic research. Residents are encouraged to participate in research projects within the department. However, residents are also welcome to pursue research projects under the mentorship of researchers throughout UCSD or affiliated institutes. Research projects are selected by the resident in conjunction with the department chair and program director. All research projects must be under the supervision of a UCSD faculty member. Although they are relieved of daytime clinic responsibilities during research time, residents do continue to cover hospital “call” schedules. Residents also have the opportunity to enroll in the Master’s Degree program in Clinical Research (MAS degree) during their research year if funding is available.

The department also supports the Holman pathway allowing selected residents up to 21 months of dedicated research time. These residents have to show strong clinical aptitude early on during residents and are selected for Holman toward the end of the PGY2 year. We enrolled our first resident in the Holman pathway in 2015.

Program Personnel and Resources

The Residency Program Director is John Einck, MD.

Dr. Einck is available at all times to discuss issues and concerns regarding the residency program with residents and faculty. Dr. Einck was named program director in March 2011. As Program Director, he is responsible for the residency program as a whole and is accountable for its operation. This includes activities related to recruitment, selection, instruction, supervision, counseling, evaluation and advancement of residents, as well as the maintenance of records related to program accreditation. Dr. Einck meets with each resident individually on a semi-annual basis (January and July) to review his/her progress in the residency, log totals, review in-training exam results, and address any educational concerns on the part of faculty, staff or the resident. The Clinical Competency Committee convenes semi-annually (November and May) to review each resident’s progress in the program and to assign Milestone levels to each.

Residency Program Coordinator

The Residency Program Coordinator is Jessica Bazo. Ms. Bazo maintains all resident academic files, confidential correspondence, and evaluations. She may be contacted to make an appointment to review the contents of selected files. She provides organizational support for the residency program and assists the program director, including the recruitment and interview process for residency applicants.
Residency Program Clinical Curriculum

Overview
The program provides the resident with the opportunity to gain in-depth knowledge of clinical radiation oncology, including the indications for irradiation and special therapeutic considerations unique to each site and stage of disease.

The residents are trained in standard radiation techniques, as well as in the use of treatment aids and treatment planning to optimize dose distributions. In addition, residents learn the principles of normal tissue tolerance to radiation and tumor dose-response. Residents also gain exposure to combined modality therapy, altered fractionation schemes, pain management, and palliative care.

Clinical Rotations
Each clinical rotation is of three months duration during which residents work one on one with an attending physician. The rotation schedule is determined by the chief resident(s) and approved by the program director on an annual basis.

The schedule is designed to ensure not only exposure to all clinical areas, but to allow progressive responsibility of the resident in patient management. The rotation schedule is distributed at the beginning of each academic year.

The clinical rotations expose residents to the management of brain tumors, head/neck tumors, skin tumors, breast cancers, lung cancers, gastrointestinal tumors, genitourinary cancers, gynecologic tumors, lymphomas, leukemia, soft tissue tumors, bone tumors, and pediatric tumors. In addition, residents gain exposure to the radiotherapeutic management of benign tumors, palliative radiotherapy and metastatic disease.

During specific clinical rotations, radiotherapeutic procedures are taught, including stereotactic radiosurgery, intraoperative radiation therapy, 3-dimensional conformal RT and intensity modulated RT (IMRT) planning and delivery, image-guided RT (IGRT), radioimmunotherapy, unsealed sources, total body irradiation (TBI) as used in stem-cell transplantation, total skin
irradiation, high- and low-dose-rate brachytherapy, hyperthermia, kilovoltage irradiation, plaque therapy, particle therapy, and intravascular brachytherapy.

Residents also are trained in the use of external beam modalities, including megavoltage irradiation, electron beam, simulation using conventional and/or CT simulators to localize anatomy and computerized treatment planning. All residents personally perform technical procedures, including treatment setups as well as intracavitary and interstitial placement of radiation sources.

**Follow-up of Irradiated Patients**

Follow-up of irradiated patients is required on each clinical rotation, including pediatric patients, on an inpatient or outpatient basis. This ensures that all residents have the opportunity to learn about problems of recurrent and disseminated tumors and the late effects (complications) of radiation therapy.

**Residency Program Didactic Curriculum**

**A. Format**

The residency program curriculum strives to expose residents to all aspects of clinical and academic radiation oncology, radiation physics and biology. The format is designed to provide progressive participation of residents. First year (PGY-2) residents receive an initial series of lectures introducing basic concepts in radiation oncology, biology and dosimetry and physics. The didactic schedule consists of morning conferences, lectures, journal clubs, and seminars. The schedule is organized around “disease months” (e.g. gynecologic cancer, lung cancer, head/neck cancers, etc.), during which most conferences and lectures focus on issues related to these disease sites. The didactic lectures and seminars are designed to provide the residents with perspectives and opportunities for education and intellectual development; they are not meant to be substitutes for critical, independent study. Attendance at all didactic conferences is mandatory.

**B. Goals and Objectives**

Specific goals and objectives exist for each clinical year (see Appendix IV) and each clinical rotation (Appendix V). Goals and objectives are distributed to all residents and faculty annually and are reviewed by residents prior to their rotations. The residency program requires all residents to obtain competence in the six ACGME core competencies to the level expected of a new practitioner.

- **Patient care** that is compassionate, appropriate and effective for the treatment of health programs and the promotion of health
- **Medical knowledge** about established and evolving biomedical, clinical and cognitive sciences, as well as the application of this knowledge to patient care.
• **Practice-based learning and improvement** that involves the investigation and evaluation of care for patients, the appraisal and assimilation of scientific evidence, and improvements in patient care

• **Interpersonal and communication skills** that result in the effective exchange of information and collaboration with patients, their families and other health professionals.

• **Professionalism** as manifested through a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to patients of diverse backgrounds.

• **Systems-based practice** as manifested by actions that demonstrate an awareness of and responsiveness to the large context and system of health care, as well as the ability to call effectively on other resources in the system to provide optimal health care.

A. Didactic Components

### Monday Didactics

**Clinical Case Conference**  
Monday noon – 1 pm, MCC Conference Room (3-4 per month)

The focus of this resident-run conference is on specific aspects of the disease (epidemiology, anatomy, etiology, general management etc.) and technical issues of RT management. Topics conform to the Disease Month and cover all major disease subsites once at least every 2 years.

**Boards Review**  
Monday 12-1 pm, MCC Conference Room (monthly)  
Faculty: Doug Rahn MD

This is an interactive, case-based discussion designed to familiarize the residents with the format and types of questions they might be asked in oral boards.

### Tuesday Didactics

**Tuesday Didactics**  
Tuesday 8 - 9 am, MCC Conference Room

**Physics Class**  
Faculty Directors: Derek Brown PhD and Todd Atwood PhD
This conference (termed Physics 1.0) includes lectures, practical demonstrations, and review questions geared toward medical residents. There is a separate upper level series (Physics 2.0) for physics residents only. Physics 1.0 is held twice per month on the 1st and 3rd Tuesdays.

_Dosimetry Class_
Course Directors: Mariel Cornell CMD and James Murphy MD MS

This course is designed as a hands-on opportunity for residents to learn the basics of RT planning, from setting up fields to 3D-CRT planning and even simple IMRT. The topics coincide with the Disease Month and helps reinforce practical concepts learned during Physics Class. This didactic is held once a month on the 4th Tuesday.

_Wednesday Didactics_
8-9 a.m.  MCC Conference room

_Faculty Clinical Lectures_
Clinical lectures based on the Disease Month are given by faculty specializing in that disease site. At least one faculty from another department is invited per month.

_Radiation Oncology Business Class_
Course Director: Arno J. Mundt MD

This class is designed to expose the residents to the business aspects of radiation oncology. A variety of topics are covered including contracting, hiring and compensation of physicians, physicists and staff, new program startup (including equipment purchasing), productivity metrics, and building a successful academic program that includes research and residency training programs. This class occurs quarterly.

_Anatomy for the Radiation Oncologist_
Faculty: Jona Hattangadi-Gluth MD

This class is designed to expose the residents to basic anatomy and imaging pertinent to the practice of radiation oncology including target and normal tissue contouring. The topic conforms to the Disease Month. This class is held monthly.
Professionalism & Leadership
Faculty: Todd Pawlicki PhD, Arno J. Mundt MD

This course provides residents with practical information on professionalism and leadership that is not readily found in any textbook or other sources. It also focuses on major areas in professional life and career in order to provide the best chance of success.

Thursday Didactics
Thursday 12-1 pm, MCC Conference Room

Practical Joint Case Conference
One medical resident and one physics resident are assigned on a rotating basis to prepare and present a clinical case. The focus of the first half hour is on the specific clinical aspects of the disease (epidemiology, anatomy, etiology, etc.) and will be discussed by the Radiation Oncology Resident and the second half of the hour will focus on technical issues of radiotherapeutic management which will be discussed by the Physics Resident. Expectations are based on the year of training. Topics conform to the Disease Month and follow a predefined schedule. These conferences occur twice monthly.

Journal Club
The journal club is used to present select 3-4 new articles (as well as classic publications) related to the current Disease Month. This conference occurs once monthly.

Clinical Case Conference
The focus of this resident-run conference is on specific aspects of the disease (epidemiology, anatomy, etiology, general management etc.) and technical issues of RT management. Topics conform to the Disease Month and cover all major disease sub-sites once at least every 2 years.

Morbidity & Mortality
Attendings and residents record cases on a central master list on an ongoing basis. From this list, 3 cases are selected based on the disease month and presented for discussion. The literature is reviewed and techniques to mitigate and treat toxicities are discussed.
### Friday Didactics

#### Grand Rounds

This department-wide seminar features on a rotating basis the research faculty (both in our department and collaborators) presenting their current work. In addition, Visiting Professors are invited twice yearly to present at this conference as well as spend the day with the residents and meet with select faculty. This conference occurs on the 1st Friday.

#### Biostatistics Education

Faculty Director: James Murphy MD

Residents participate in a biannual biostatistics course consisting of 6 interactive classes to analyze practical problems using SAS, R, or Matlab (resident preference). Residents are also exposed to medical statistics through individual conferences including monthly journal club.

#### Humanism in Oncology

Faculty Director: Jona Hattangadi-Gluth MD

A series of interactive case-based sessions with residents on physician-patient issues (e.g. giving bad news, challenging patient-family dynamics), medical ethics, workplace conflicts, and physician burnout and stress. Interactive discussions involve real-cases and even some role-play of challenging situations that come up in the clinic.

#### Radiation Biology Class

Faculty Directors: Sunil Advani MD, Andrew Sharabi MD PhD, and Milan Makale, PhD

This course exposes both radiation oncology and physics residents to radiobiology topics including radiation response, cell cycle and dose rate effects. The class is based on Hall's text *Radiobiology for the Radiologist* but incorporates a review of mechanisms of systemic therapies to reflect the Disease Month. This didactic is held once a month on the 2nd Tuesday.

#### Visiting Professor Series

(Annually)

Visiting professors from outside institutions are invited to spend a day in the department. The visitors are scheduled to visit on a Monday, allowing participation in Monday Morning Conference. The topic is selected in advance by the chief resident to correspond to the academic interests of the visitor. In addition to meeting with selected faculty, the visiting professor spends
one to two hours (including lunch) with the residents discussing relevant cases. Residents are excused from all clinical activities for the day, and attendance is mandatory.
Directions and Parking

Moores Comprehensive Cancer Center at UCSD
3855 Health Sciences Drive
La Jolla, California 92093

FROM I-5: Exit Genesee Avenue and go east. Turn right onto Campus Point Drive and left on Medical Center Drive. Follow the road around Shiley Eye Center, and turn left at Health Sciences Drive. Park in the lot on the right.

FROM I-805: Exit La Jolla Village Drive and go west. Turn right on Regents Road. Turn left on Health Sciences Drive and park in the lot on your left as you near the Cancer Center.

Parking
The patient and visitor lot is located directly behind the Radiation Oncology PET/CT Center, at the end of Health Sciences Drive. Parking will be validated for you free of cost.

Enter through the main doors of Moores Cancer Center, then go to the left through the Radiation Oncology waiting room. Go back through two sets of doors to the department in Room 1414.

If you require any additional assistance, feel free to contact our program coordinator:

Jessica Bazo
(858) 822-0941
About San Diego

As California’s second largest city and the United States’ eighth largest, San Diego boasts a citywide population of 1.3 million residents and more than 3 million residents county-wide. Occupying over 4200 square miles, San Diego County encompasses 18 incorporated cities and miles of coastline, mountains and desert. The city of San Diego has numerous charming neighborhoods and communities, including downtown’s historic Gaslamp Quarter, Old Town San Diego, Little Italy, Coronado, La Jolla, and Del Mar just to name a few.

San Diego is renowned for its idyllic climate, 70 miles of beaches, and a dazzling array of world-class family attractions. Popular attractions include the world-famous San Diego Zoo and Zoo Safari Park, Sea World San Diego, and Legoland California. San Diego offers an expansive variety of things to see and do, appealing to residents and guests of all ages.

In San Diego’s east county, the terrain varies from gentle foothills to mile-high mountains and the historic mining town of Julian down to the 600,000-acre Anza Borrego Desert State park, offering visitors endless opportunities to hike, camp, fish, observe wildlife and much more. In San Diego’s north county, the agricultural communities produce abundant quantities of flowers and magnificent produce, such as citrus and avocados. Wine enthusiasts are also making a mark by growing and harvesting quality grapes that become excellent wines served at the most elegant restaurants and resorts in the
region. Along the west, 70 miles of Pacific Ocean coastline not only supports year-round outdoor recreation—such as surfing, boating, sailing, and swimming—but also important scientific research at the Scripps Institution of Oceanography. To the south, Mexico features its own cultural offerings in various towns along the border and coastline including Tijuana, Rosarito, and Ensenada.

San Diego’s arts, culture, and culinary arts are booming. The hottest new culinary arts talents prepare award-winning meals throughout the region’s 6,400 eating establishments. Balboa Park, the largest urban cultural park in the U.S., is home to 15 museums, numerous art galleries, beautiful gardens, the Tony award-winning Globe Theatre, and the San Diego Zoo.

For beer lovers, San Diego county is the home to almost 100 licensed craft breweries and brewpubs, with 40 more in the planning stages. It has been nicknamed "the craft beer capital of America," and brewers have pioneered several specialty beer styles, most notably Double India Pale Ale (Double IPA), sometimes called San Diego Pale Ale. Major beer festivals include San Diego Beer Week in November and the San Diego International Beer Competition in June. San Diego county breweries like Alesmith Brewing Company and Stone Brewing Co. are consistently rated among the top breweries in the world.

San Diego County also features 92 golf courses and a variety of exciting participatory and spectator sports, beachfront resort and luxury spas, gaming, a dynamic downtown district, annual special events and unique holiday offerings, multicultural festivals and celebrations, colorful neighborhoods and communities, a rich military history and much more.
The most difficult decision to make is determining what to do and see among the region’s vast and diverse offerings. San Diego County promises a truly remarkable experience for everyone.

San Diego Visitor Information website:  
http://www.sandiego.org/nav/Visitors/VisitorInformation

Virtual Tour of San Diego:  
http://www.enrichmediainc.com/roadtrips_sandiego/index.html

Transportation Information:  
http://health.ucsd.edu/specialties/international/visiting/Pages/transportation.aspx

**Things to do in La Jolla**

Visit the La Jolla Playhouse, a theater on the UC San Diego campus.  
http://www.lajollaplayhouse.com

Explore the Birch Aquarium at Scripps, a public exploration center for the world-renowned Scripps Institution of Oceanography at UC San Diego.  
http://www.aquarium.ucsd.edu

Take a trip to La Jolla Cove, a world famous dive site that is located in the La Jolla ecological preserve.  
http://www.lajollacove.com

Visit Mount Soledad, a landmark that also holds the last home lived in by author Dr. Seuss.  
http://www.soledadmemorial.com

Enjoy kayaking inside sea caves or bike along the coast with the San Diego Bike and Kayak Tours.  
http://www.sandiegobikeandkayaktours.com
After the Interview

The members of the Radiation Oncology Residency Interview Committee will each be asked to review each applicant’s file and along with the interview provide their overall impression of each candidate.

Candidates will be ranked and this rank order will be submitted to the National Residency Match Program.

Although we will only match three applicants this year, we have no doubt that in a small field such as ours we will have opportunities to interact with many of you in the future. We wish you all the best in your personal and professional endeavors.

Arno J. Mundt, MD, FACRO, FASTRO
Professor & Department Chair

John P. Einck, MD, FACRO
Professor & Residency Program Director
Best of Luck!
Appendix A: RMAS Faculty

Professors
- Joseph Califano MD
  - La Jolla
- John Einck MD, FACRO
  - La Jolla/Proton Center
- Carrie McDonald PhD
  - La Jolla
- Loren Mell MD
  - La Jolla/4S Ranch
- Vitali Moiseenko PhD
  - La Jolla
- A. J. Mundt MD, FACRO FASTRO
  - La Jolla
- Greg Ogilvie DVM
  - Angel Care
- Todd Pawlicki PhD
  - La Jolla
- Roger Rice PhD (emeritus)
  - ----
- Carl Rossi, MD
  - Proton Center
- Ajay Sandhu MD
  - La Jolla
- Catheryn Yashar MD, FACRO, FACR
  - La Jolla/Proton Center

Associate Professors
- Sunil Advani, MD
  - South Bay
- Todd Atwood PhD
  - La Jolla
- Derek Brown PhD
  - La Jolla
- Chang Chang PhD
  - Proton Center
- John Crawford MD PhD
  - Rady Children’s
- Jona Hattangadi-Gluth MD
  - La Jolla/Proton Center
- David Hoopes MD
  - 4S Ranch
- Monica Khanna MD
  - Rancho Mirage
- Gwe-Ya Kim PhD
  - La Jolla
- Vasudha Lingareddy MD
  - Rancho Mirage
- Amit Majumdar PhD
  - Super Computer Center
- Gina Mansy MD
  - South Bay
- Jyoti Mayadev MD
  - La Jolla
- James Murphy MD
  - La Jolla
- Trent Ning, PhD
  - 4S Ranch
- Parag Sanghvi MD
  - La Jolla
- Dan Scanderbeg PhD
  - La Jolla
- James Urbanic MD
  - Encinitas/Proton Center
- Zoe Woel MD
  - El Centro

Assistant Professors
- Casey Bojechko, PhD
  - La Jolla
- Andrew Bruggeman MD
  - La Jolla
Dong Ju Choi PhD⁶
Chris Coyne MD⁷
Irena Dragojevic PhD
Brandon Fisher DO⁷
Annelise Giebeler PhD⁴
Ryan Grover MD⁴
David Hoffman, PhD
Jeremy Hoisak PhD
Titania Juang PhD
Kelly Kisling PhD
Iain Macewan MD
Diagne Magette PhD⁸
Milan Makale PhD
Ryan Manger PhD
Sandra Meyers PhD
Douglas Rahn MD
Dominique Rash MD
Xenia Ray PhD
Brent Rose MD
Adam Schulman PhD⁸
Tyler Seibert MD PhD
Andrew Sharabi MD PhD
Daniel Simpson, MD
Bongyong Song PhD
Evan White MD

Instructors
Erin Gillespie MD

Project Scientists
Roshan Karunamuni
Dina Hingorani

¹Joint Appointment (Surgery)
²Joint Appointment (Psychiatry)
³Angel Care Veterinary Cancer Hospital
⁴California Proton Center
⁵Joint Appointment (Pediatrics)
⁶San Diego Super Computer Center
⁷Joint Appointment (Emergency Medicine)
⁸Radiating Hope Affiliate
Recent Resident Publications


Bryant AK, Huynh-Le MP, Simpson DR, Gupta S, Sharabi AB, Murphy JD. Association of HIV status with outcomes of anal squamous cell carcinoma in the era of highly active antiretroviral therapy. *JAMA Oncol* 2018; 4(4): 120-122


Green G, Kim E, Carmona R, Shen H, Murphy JD, Mell LK. Incidence of Long-Term Esophageal Dilation With Various Treatment Approaches in the Older Head and Neck Cancer Population. Front Oncol. 2018 Oct 23;8:466


Kim DN, Straka C, Cho LC et al. Early and multiple PSA bounces can occur following high-dose prostate stereotactic body radiation therapy; subset analysis of a phase I/II trial. *Prac Radiat Oncol* 2017; 7(1); e43-49.


Seibert TM et al. Distortion inherent to magnetic resonance imaging can lead to geometric miss in radiosurgery planning. *Prac Radiat Oncol* 2016; 6(6): e319-328


Seibert TM, Mundt AJ. Gray(s) anatomy: The case of the missing “s”. *Int J Rad Oncol Biol Phys* 2016; 94(3): 435-7


Interview Notes
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