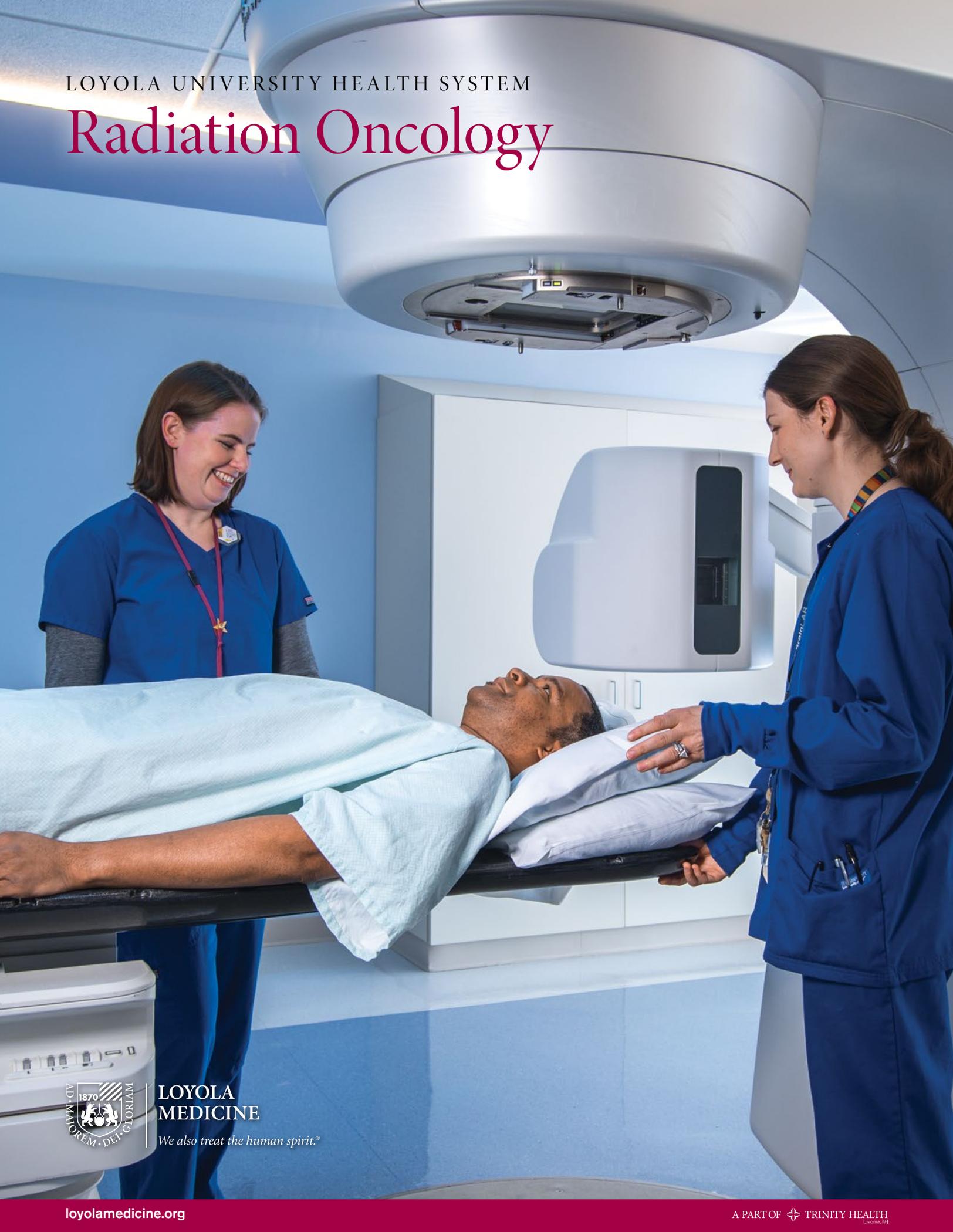


LOYOLA UNIVERSITY HEALTH SYSTEM

# Radiation Oncology



LOYOLA  
MEDICINE

*We also treat the human spirit.®*



## Message from the Chairman

*I have been at Loyola University Health System now for more than two years and in that time I have become aware of what a truly wonderful institution I have joined. Under the leadership of **Bahman Emami, MD**, the department I inherited was already a well-established, nationally recognized program. Adding to the stature of the department, in recent years we have accomplished dramatic clinical growth, increased our academic portfolio, initiated new clinical programs and, above all, provided exceptional service and clinical care. Loyola is **THE** place to receive radiation therapy.*

*At Loyola's department of radiation oncology, we put the patient at the center of all we do. Our committed physicians, residents, nurses, medical physicists, dosimetrists, therapists and support staff work in harmony to provide patients with the highest level of care. The academic department consists of eight attending physicians, an advanced practice nurse, four faculty physicists and a radiobiologist. All contribute to the mission of the department through clinical service, education and research.*

*Advances in radiation oncology, paired with innovations in technology, continue to lead to even more successful outcomes. In early 2014, we began an Intraoperative Radiotherapy (IORT) Program for several disease sites. Since then, we have treated more than 28 IORT patients with breast, gastrointestinal, gynecologic, spine and head and neck malignancies. We continue to try to identify novel ways to use this treatment modality to more effectively help our patients, including innovative clinical trials in head and neck cancer, pancreatic cancer and spine metastasis. Recently, we started the first Kyphoplasty-IORT program in the United States for patients with spine metastasis in the form of a Phase I clinical trial. In addition, we initiated a novel Phase I trial of Intrabeam IORT at the time of resection in pancreatic cancer.*

*In 2014, we also began a program for patients with locoregionally recurrent breast cancers using hyperthermia in conjunction with radiotherapy, a treatment approach for patients who otherwise have limited salvage options. We have since treated 11 patients using this modality and our program continues to grow.*

*Earlier this year, we formed a partnership with the Northwestern Medicine Chicago Proton Center in Warrenville to provide proton therapy as a treatment option for the patients under our care. Access to proton therapy is not only an additional treatment modality that may benefit our patients but also has expanded our research program and the education of our residents and medical students. Physicians and physicists have been working with their counterparts at the Proton Center in the development of proton radiography and the design of a novel proton CT scanner, which should aid in the precise determination of proton beam range.*

*The past year has brought new enthusiasm to our brachytherapy and special procedures program. We have transitioned to truly state-of-the-art image-guided brachytherapy. An MRI-based Cervical Brachytherapy Program has been developed with the treatment of our first patient in July 2014. We also recently treated our first prostate cancer patient with HDR brachytherapy.*

*The department continues to provide radiation oncology services at Edward Hines Jr. VA Hospital, which is a critical component of our mission. Veterans receive care under the direction of our attending physicians. In addition, our expert staff in physics, dosimetry and radiation therapy ensures precise radiation delivery. On average, our VA Department treats more than 600 patients per year, encompassing all disease sites.*

*This past year has exemplified the department of radiation oncology's continued commitment to delivering excellent healthcare and developing outstanding radiation oncologists. We have expanded our total radiation oncology residency to eight residents and have recently added a medical physics residency that will complement our existing educational programs.*

*Research has continued to flourish in the department. We have expanded our clinical research staff to three, allowing us to more actively recruit and enroll patients in clinical trials. In addition, we have opened a number of investigator-initiated trials. Within the basic and clinical sciences, we have seen a significant increase in the numbers of publications, presentations and grant funding.*

*Many of these programs are highlighted in this newsletter. We hope you will take time to learn about them, and that you will contact us if you have any questions. Our hope is to continue to have a world-class department with state-of-the-art treatments, teaching, research and service.*



William Small Jr., MD, FACRO, FACR, FASTRO

Professor, Radiation Oncology, Loyola University Chicago Stritch School of Medicine  
Department chair of Radiation Oncology, Loyola University Health System



## Loyola Outpatient Clinic

We've had the opportunity to develop several new clinical programs in our outpatient clinic over the last two years to help better serve our patients. As discussed in the chairman's message, these programs include intraoperative radiation, hyperthermia and image-guided brachytherapy.

We look forward to the expanding role of radiation therapy in the treatment of primary and metastatic liver tumors under the direction of **Tarita Thomas MD, PhD**, and **Murat Surucu, PhD**. We have opened a multi-institutional study for transplant candidates with hepatocellular carcinoma using preoperative SBRT to aid in tumor ablation prior to transplant. In addition we are also continuing to better define the role of radiation therapy in pancreatic cancer patients through the participation of a multi-institutional trial evaluating the role of SBRT to FOLFIRINOX-based chemotherapy.

Additionally, we are developing a comprehensive multi-disciplinary Spine Metastasis Program at Loyola. The program will use surgical management, spine SBRT and our continued investigation of kyphoplasty-IORT to advance the care of patients with spine metastases. The goal of this program is to provide input from a radiation oncologist, interventional radiologist, orthopaedic and neurological surgeons regarding the optimal treatment options for patients found to have spine tumors. Other areas where IORT is being investigated include head and neck (**Dr. Emami, Anil Sethi, PhD**,

**Rick Borrowdale, MD, Mehee Choi, MD, and Abbie Diak, PhD**) and glioblastoma (**Abhi Solanki, MD, Dr. Sethi and Ed Melian, MD**). **Dr. Emami** is the international chair of the Data and Safety Monitoring Board (DSMB) for the INTRAGO glioblastoma trial.

We also are looking forward to developing our Oligometastasis Program. We have opened multiple cooperative group trials evaluating the role of ablative local therapy for patients with a limited number of sites/locations of metastatic disease. The results of these trials have the potential to dramatically change our understanding of the local treatment and biologic nature of metastatic disease and we are proud to be able to contribute to this understanding.

In the next few months, we will transition our Intracranial Stereotactic Radiosurgery/Radiotherapy Program from a Novalis®-based program to a Truebeam® and Edge®-based program. Led by **Dr. Melian** and **Dr. Sethi** we look forward to providing the most leading-edge clinical Stereotactic Radiosurgery/Radiotherapy Program, as well as advancing the science of radiosurgery by performing innovative research.

## A Focus on Loyola's Commitment to Quality and Patient Safety

As we move into the next year, we have launched several initiatives to continue to provide excellent care for our patients and evolve our operations workflow to be at the forefront

of our changing healthcare environment. We are committed to providing the highest quality care and being worldwide leaders in patient safety. This is best exemplified by the fact that in March 2015, we underwent an evaluation by the ACR Radiation Oncology Practice Accreditation Program, and our accreditation was successfully renewed.

As a part of this, we have grown our nursing staff to include **Barbara Kaczmarz, RN**, who is our nursing clinical coordinator, **Katie Bilan, RN**, our special procedures nurse, along with **Katherine Mendoza, RN**, and **Lorena Campos, RN**, our clinical nurses. **Angela Bradford, APN**, also joined our department as our nurse practitioner. Our nursing group continues to grow and provide excellent care to our patients.

We're not done! There are several other initiatives we have planned for the coming year, which we hope to use to help advance patient safety, maximize the value of the care we provide and improve clinic workflow efficiency in Loyola's Radiation Oncology Outpatient Clinic. We are optimistic about the future of our department and are constantly striving to improve ourselves and continue to be leaders in the care of cancer patients. Together, we will continue to advance the care of cancer patients across the world.

## Leadership

We are proud that our faculty members have prominent positions in several international, national and local organizations. In these roles they are providing leadership that will shape the future of radiation oncology. Among these, **Dr. Small** is the chair of the Gynecologic Cancer InterGroup (GCIG). The group aims to promote and conduct high quality clinical trials in order to improve outcomes for women with gynecologic cancer throughout the world. He also serves on the American College of Radiology (ACR) Council Steering Committee, the American Society of Clinical Oncology (ASCO) University Board, co-chair of the Gynecology Committee of NRG Oncology and is the Education Committee vice chair for the American Society of Radiation Oncology (ASTRO).

In addition to these leadership positions, **Dr. Small** serves on innumerable other committees and has other service commitments. **James Welsh, MD**, is president of the American College of Radiation Oncology (ACRO). **Dr. Welsh** holds several leadership positions within national societies, including serving as an alternate counselor for the ACR and immediate past chair of the Government Relations Committee NRC Subcommittee. In 2015, **Dr. Welsh** completed an eight-year term as a member of the Advisory Committee on the Medical Uses of Isotopes for the United States Nuclear Regulatory Commission. **John Roeske, PhD**, is the president of the Midwest Chapter of the American Association of Physicists in Medicine (AAPM). In addition, **Dr. Surucu** is a member of the board of the directors for the Midwest Chapter. **Matthew Harkenrider, MD**, is a trustee and Radiation Oncology Program director for the Chicago Radiological Society and member of the NRG Oncology Lung Cancer Committee. **Dr. Thomas** is a member of the ASTRO Finance Committee and a member of the NRG Oncology Breast Cancer Committee.

In addition, a number of our faculty serve important roles as editors and peer-reviewers for several journals and also review abstracts for our professional organizations (ASTRO, ACRO, AAPM, RSNA), and are moderators and invited speakers at these meetings. **Dr. Small** serves as an editor for multiple journals, including the new ASTRO journal *Advances*, *Frontiers in Radiation Oncology*, *Journal of Radiation Oncology*, the *American Journal of Hematology/Oncology* and the *Bulletin of Alexandria Faculty of Medicine*. **Dr. Welsh** is an associate editor for the *Journal of Radiation Oncology*, the *American Journal of Clinical Oncology* and *Biochemical and Biophysical Journal of Neutron Therapy and Cancer Treatments* and serves on the editorial board of *Technology in Cancer Research & Treatment* and is a formal review editor for several other journals. Several Loyola faculty have served as organizers or faculty for the 2015 ASTRO annual refresher course.

Lastly, we are very fortunate to have **Dr. Emami** among our faculty. Best known for his paper on the "Tolerance of Normal

Tissue to Therapeutic Irradiation" (aka the Emami paper), **Dr. Emami** continues to be an active clinician and researcher. This past summer he was honored with the key note address at the 9th ZEISS INTRABEAM User Meeting in Mannheim, Germany, with a presentation titled, "Beyond the Linear-Quadratic Model: IORT and Normal Tissue Tolerance." He was also presented with a lifetime achievement award.

### Academic Accomplishments

Over the last two years our faculty has published 65 peer-reviewed scientific publications and 53 meeting presentations. Highlights of this include:

-**Sherertz, T.**; Hoggarth, M.; Luce, J.; **Block, A.M.**; Nagda, S.; **Harkenrider, M.M.**; **Emami, B.**; **Roeske, J.C.**, Prospective Evaluation of Dual-Energy Imaging in Patients Undergoing Image-Guided Radiation Therapy for Lung Cancer: Initial Clinical Results. *Int J Radiat Oncol Biol Phys.* 2014 Jul 1;89(3):525-31.

-**Harkenrider, M.M.**; **Alite, F.**; **Silva, S.**; **Small, W. Jr.**, Image-Based Brachytherapy for the Treatment of Cervical Cancer. *International Journal of Radiation Oncology, Biology, Physics*; 2015 Jul 15;92 (4) 921-34.

-**Emami, B.**; Woloschak, G.; **Small, W. Jr.**, Beyond the Linear Quadratic Model: Intraoperative Radiotherapy and Normal Tissue Tolerance. *Transl Cancer Res* 2015;4(2):140-147. Apr 08, 2015.

-Klopp, A.; Smith, B.D.; Alektiar, K.; Cabrera, A.; Damato, A.L.; Erickson, B.; Fleming, G.; Gaffney, D.; Greven, K.; Lu, K.; Miller, D.; Moore, D.; Peterit, D.; Schefter, T.; **Small, W. Jr.**; Yashar, C.; Viswanathan, A.N., The Role of Postoperative Radiation Therapy for Endometrial Cancer: Executive Summary of an American Society for Radiation Oncology Evidence-Based Guideline. *Practical Radiation Oncology*, May-June, 2014; 4(3): 134-144.

-Gaffney, D.K.; Jhingran, A.; Portelance, L.; Viswanathan, A.N.; Schefter, T.; Weidhaas, J.; **Small, W. Jr.**, Activities of

the Gynecologic Oncology Working Group within the RTOG: Comprehensive Results. *Int J Gynecol Cancer*, June 2014; 24(5): 956-62.

-Siegel J.A., **Welsh J.S.**, Does Imaging Technology Cause Cancer? Debunking the Linear No-Threshold Model of Radiation Carcinogenesis. *Technol Cancer Res Treat.* 2015 Mar 30. pii: 1533034615578011. [Epub ahead of print]

In addition **Dr. Small** has co-edited two books regarding the toxicity of pelvic radiotherapy and breast cancer biology.

We also have several active NIH-funded grants, such as:

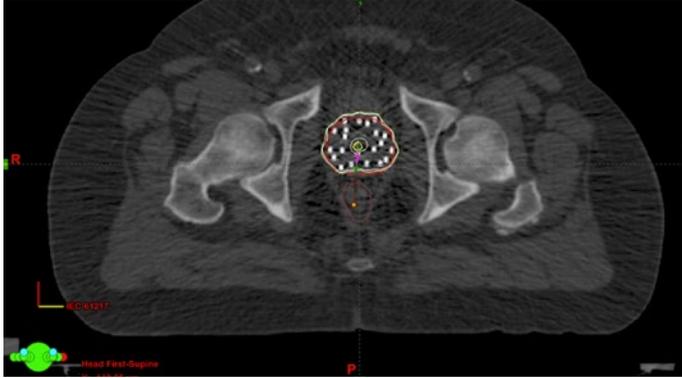
-Novel, Practical and Affordable Range Determination Methodology for Proton Therapy (**Dr. Welsh**)

### Brachytherapy



Under the leadership of **Dr. Harkenrider** the past year has brought new enthusiasm to our Brachytherapy and Special Procedures Program. We have transitioned to truly state-of-the-art, image-based brachytherapy. An MRI-based Cervical Brachytherapy Program was a collaborative group effort that took more than six months of planning, which led to the treatment of our first patient in July 2014. This led to an IRB-prospective database to track and report on our outcomes and a Red Journal publication reviewing image-guided brachytherapy. We are in the process of joining the EMBRACE II trial — an international trial of image-based brachytherapy. This will entail further training in Europe in which **Dr. Harkenrider**

and **Dr. Diak** will be participating. Additionally, we have started an MRI-based Interstitial Brachytherapy Program for patients with recurrences of endometrial or cervical cancer or with locally advanced cervical cancer. The use of MRI allows for true individualization of care for our brachytherapy patients.



**Drs. Solanki, Harkenrider and Diak**, were awarded and completed the ABS HDR Brachytherapy fellowship to provide specialized training in HDR brachytherapy. This is a competitive fellowship and speaks to the strength of our physicians, physicists and program. This training led to the development of our HDR Prostate Brachytherapy Program with our first patient treated in September 2015. We will continue evolution of this program by developing institutional protocols to expand treatment options for our patients.

### Edward Hines Jr. VA Hospital

A critical component of our mission, the department continues to provide radiation oncology services at Edward Hines Jr. VA Hospital. Veterans receive care under the direction of our attending physicians. In addition, precise radiation delivery is ensured through our expert staff in physics, dosimetry and radiation therapists. On average, the department treats more than 600 VA patients each year, encompassing all disease sites. Since the start of 2015, **Dr. Welsh** has been serving as chief of radiation oncology and the program continues to evolve.

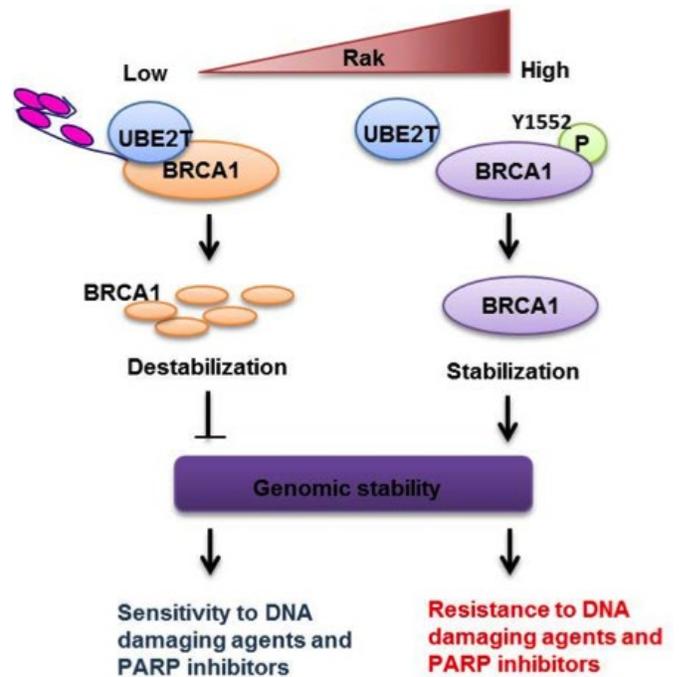
The department was reaccredited by the American College of Radiology in 2014. This accreditation provides an external audit of the department ensuring that the highest standards of care are followed. In addition, our physicians participate

in regular cancer committee meetings and the program is accredited by the American College of Surgeons.

Recently, Hines VA Hospital was chosen to participate in the VALOR trial comparing SBRT vs. surgery for NSCLC. This is a major accomplishment. The trial could result in a very significant paradigm shift in lung cancer management. Being invited to participate in this study is an honor since only five sites nationwide have been selected.

There are a number of new programs being developed at Hines VA Hospital. Among these is a program to provide stereotactic radiosurgery (SRS). To implement this program, a new LINAC has been purchased by the VA health system. This LINAC will replace one of the existing treatment units. In addition to having SRS capabilities, the unit will be able to perform image-guided radiotherapy (IGRT) and volumetric modulated arc therapy (VMAT) – both state-of-the-art treatment modalities. Installation of the unit is expected in fiscal year 2016.

### Biology



The laboratory of **Eun-Kyoung Breuer, PhD**, is focusing on the roles of Rak tumor suppressor and investigating how dysregulation of these proteins affects the DNA damage

response signaling. Breast tumors lacking BRCA1, an important tumor suppressor, exhibit more aggressive and metastatic features and are more sensitive to DNA-damaging agents, such as radiation and platinum-based chemotherapeutic drugs, and PARP inhibitor therapy. Our intriguing recent study indicates that low levels of Rak reduce BRCA1 expression through the ubiquitin-proteasome system and, thus, increase cellular sensitivity to radiation and PARP inhibitors. Based upon our findings, we speculate that breast cancer patients with low levels of Rak may benefit more from radiotherapy and PARP inhibitor therapy than those with comparatively higher levels of Rak. Over the next year we plan to demonstrate our hypothesis in various breast cancer cell models as well as in animal models. We strongly believe that our study will provide a critical preclinical proof of concept for new avenues of personalized breast cancer management to improve patient care and outcomes.

**Dr. Small**, has continued to collaborate with Gayle Woloschak, PhD, from Northwestern University. Recently, they published a study to elucidate the action of the CD28 mimetic peptide p2TA (AB103) that attenuates an excessive inflammatory response in mitigating radiation-induced inflammatory injuries. The results of their study suggest that attenuation of CD28 signaling is a promising therapeutic approach for mitigation of radiation-induced tissue injury.

**Dr. Small** and Dr. Woloschak continue to work together and recently received a grant to determine the biomarkers associated with cervical cancer relapse following radiation or chemoradiation therapy.

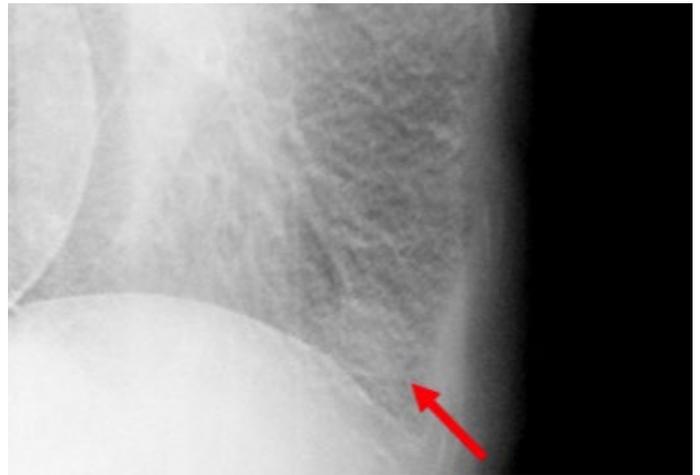
### Clinical and Translational Research

The department is very actively engaged in clinical research with 30 actively accruing clinical trials. While most of these are intergroup studies through NRG and other groups, several are investigator-initiated and industry-supported trials. We are a full member of NRG Oncology with **Dr. Small** serving as the institutional PI. We are dedicated to bringing state-of-the-

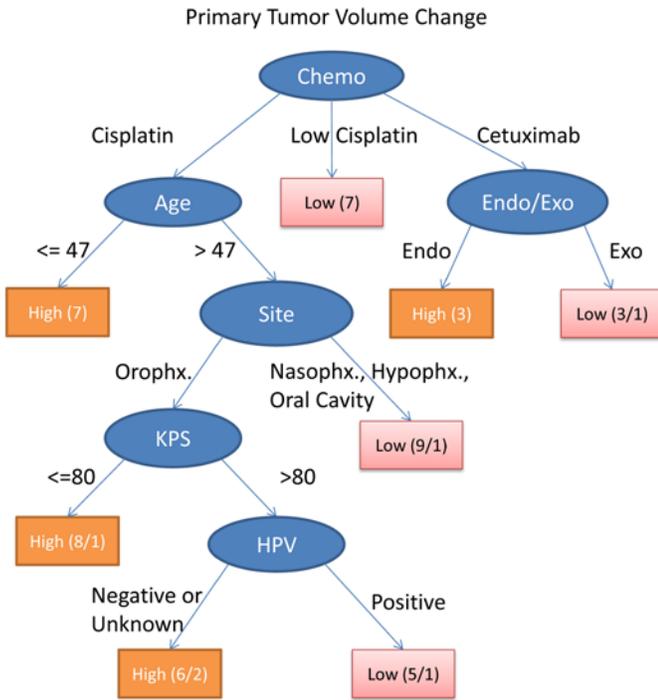
art research from bench to bedside. Many of these projects have been highlighted in other sections, including innovative IORT trials, brachytherapy, SBRT and new approaches in image guidance.

### Physics

The breadth of medical physics research in the department spans from basic radiation measurements to advanced imaging and computer vision. Most of our research is performed in collaboration with attending physicians and residents, thus adding a significant translational component. That is, the research findings of today will directly impact and improve the future care given to our patients. Listed below is summary of a few of the research findings from recently published manuscripts.



**Dr. Roeske, Dr. Harkenrider** and co-investigators have been investigating the utilization of DE imaging for image guidance. Briefly, DE imaging involves obtaining two planar X-ray images at a high (120 kVp) and a low (60 kVp) energy, respectively. By performing a weighted logarithmic subtraction, a third image can be created that suppresses bone. In the thorax, such images may be used to remove the ribs and spine to provide a clearer image of the tumor. The group is currently investigating how these images may be used to provide markerless motion tracking of lung tumors in patients treated with SBRT.



In collaboration with **Dr. Emami** and **Dr. Choi, Dr. Surucu** has been investigating the potential of adaptive radiotherapy (RT) for head and neck patients. Recently, the team developed a decision tree model to predict for tumor volume reduction using pretreatment clinical and pathological parameters. Such an approach may allow radiation oncologists to accurately predict those patients who may benefit the most from adaptive RT. The group is currently planning a prospective study to test this hypothesis.

**Dr. Sethi** and collaborators have investigated the effects of tissue inhomogeneities on dose distributions produced by low-energy X-rays from an intrabeam device used in intra-operative radiotherapy (IORT). The results of this study may be used to estimate and appropriate IORT dose delivered in the presence of tissue inhomogeneities.

Our newest faculty member, **Dr. Diak** has been investigating the use of magnetic resonance (MR) imaging in radiotherapy treatment planning. Specifically, she has been characterizing spectral parameters of tissue in vitro with high spectral

and spatial (HiSS) resolution MR images to be used as a foundation for a classification-based synthetic CT algorithm. This results of this study may allow density information to be obtained from MR images and would allow for these images to be used directly by the radiotherapy treatment planning system.

### Physics Residency

This past summer the department welcomed its first medical physics resident—**Rakesh Patel, PhD**. This new program was made possible through a generous donation from Mr. and Mrs. Reginald Barrett. The residency is a two-year training program that will cover all areas of clinical physics with the expectation that upon completion of the program the resident will be able to sit for ABR certification in radiation oncology physics. **Dr. Sethi** is the inaugural program director. He has been working to develop the curriculum and clinical rotations with the goal of applying for program certification from CAMPEP in the spring of 2016.

### Education

The past year has exemplified the department of radiation oncology's continued commitment to and performance in delivering excellent healthcare and developing outstanding radiation oncologists. We are providing the residents with an abundance of clinical cases not found in most residency programs, such as intraoperative radiotherapy, proton therapy, hyperthermia and a full spectrum of brachytherapy procedures.

We will have seven residents in 2016 and will expand to eight in 2017.

Academic and research endeavors also have been a major component in the residents' development over the past year, as our residents have been actively engaged in both.

**Alec Block, MD**, had an oral presentation at 2014 ASTRO titled "Evaluation of a Template-Based Algorithm for Markerless Lung Tumor Tracking on Single Energy and Dual

Energy kV Images." **Dr. Block** continued his work leading to the incredible honor at 2015 ASTRO with a presentation in the "Best in Physics" session for his research titled "Dual Energy Fluoroscopy for Markerless Motion Tracking of Lung Tumors in Stereotactic Body Radiation Therapy (SBRT)." Moreover, **Dr. Block** is also the recipient of ASTRO's Resident Clinical/Basic Science Research Award for the same abstract. Additionally, our residents will be presenting a number of abstracts at 2015 ASTRO.

**Fiori Alite, MD**, had a poster discussion at 2014 ASTRO titled "Decreased Risk of Radiation Pneumonitis with Coincident Concurrent Use of Angiotensin-Converting Enzyme Inhibitors in Patients Receiving Lung Stereotactic

Body Radiation Therapy (SBRT)." His work on SBRT has led to several manuscripts, which will soon be published.

**Maya Mathew, MD**, was awarded the Holman Pathway allowing her 18 months of dedicated basic science research during her residency. **Karan Shah, MD**, authored an investigator-initiated trial on the use of kyphoplasty and electronic brachytherapy in the treatment of pathologic vertebral fractures, including the treatment of the first patient on protocol.

Our residents have been very active with organized medicine service within ASTRO, ACR, the Chicago Radiological Society and other service at Stritch School of Medicine, Loyola University Chicago.

## Department of Radiation Oncology



**William Small Jr., MD, FACRO, FACR, FASTRO**

Professor  
Chairman, Radiation Oncology

**Medical School:** Northwestern University Feinberg School of Medicine

**Residency:** Northwestern University Feinberg School of Medicine, Radiation Oncology

**Specialties:** Gynecologic Cancer, Gastrointestinal Cancer, Breast Cancer, Brachytherapy



**Bahman Emami, MD, FACR, FASTRO**

Professor, Otolaryngology

**Medical School:** University of Tehran

**Residencies:** St. Vincent's Medical Center, Pathology; New England Medical Center Hospital, Radiology; Radiation Oncology

**Fellowship:** New England Medical Center Hospital, Radiology: Radiation Oncology

**Specialties:** Head and Neck Cancer, Larynx Cancer, Oral Cancer, Sinus Cancer, Throat Cancer, Lung Cancer



**Mehee Choi, MD**

Assistant Professor

**Medical School:** University of Texas Health Science Center

**Residencies:** Oregon Health Sciences University, Radiation Oncology; Northwestern University McGaw Medical Center, Radiation Oncology

**Specialties:** General Radiation Oncology, Breast Cancer, Intensity-Modulated Radiotherapy (IMRT), Prostate Cancer, Sarcomas, Head and Neck Cancer



**Matthew Harkenrider, MD**

Assistant Professor, Residency Program Director, Director of Brachytherapy

**Medical School:** Indiana University School of Medicine

**Residency:** University of Louisville School of Medicine, Radiation Oncology

**Specialties:** Gynecologic Cancers, GYN/HDR Brachytherapy, Lung Cancer, Stereotactic Body Radiation Therapy, Genitourinary Cancers, HDR/LDR Prostate Brachytherapy

**Edward Melian, MD**

Associate Professor, Neurological Surgery

**Medical School:** University of Cincinnati College of Medicine**Residencies:** Akron City Hospital, Internal Medicine: Preliminary; Loyola University Medical Center, Radiology: Radiation Oncology**Fellowship:** Memorial Sloan-Kettering Cancer Center, Radiology: Radiation Oncology**Specialties:** Brain Tumors, HDR/LDR Brachytherapy, Pediatric Cancer, Radiosurgery, Sarcomas, Spinal Tumors, Trigeminal Neuralgia, Stereotactic Body Radiation Therapy**Abhishek Solanki, MD**

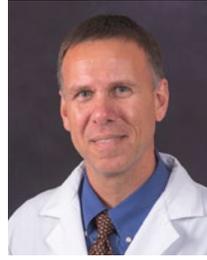
Assistant Professor

**Medical School:** University of Chicago Pritzker School of Medicine**Residency:** University of Chicago Medical Center, Radiation Oncology**Specialties:** Bladder Cancer, Brain Tumors, HDR/LDR Brachytherapy, Intensity-Modulated Radiotherapy (IMRT), Lymphoma, Prostate Brachytherapy, Radiosurgery, Spinal Tumors, Stereotactic Body Radiation Therapy, Testicular Cancer, Prostate Cancer**Tarita Thomas, MD, PhD**Assistant Professor  
Medical Student Clerkship Director**Medical School:** Northwestern University Feinberg School of Medicine**Residency:** Northwestern University McGaw Medical Center, Radiation Oncology**Graduate School:** Northwestern University**Specialties:** Breast Cancer, Gastrointestinal Cancer, Head and Neck Cancer, Intensity-Modulated Radiotherapy (IMRT), Stereotactic Body Radiation Therapy**James Welsh, MD, MS, FACRO**

Professor

**Medical School:** SUNY at Stony Brook School of Medicine**Residency:** Johns Hopkins Hospital**Fellowship:** University of Wisconsin-Madison**Board certifications:** Radiation Oncology, Neuro-oncology**Specialties:** Lung Cancer, Proton Therapy, CNS Malignancies, SBRT, SRS, Prostate Cancer

## Physics Faculty

**John Roeske, PhD**Professor  
Director of Physics**Graduate School:** University of Chicago**Fellowship:** University of Chicago**Abbie Diak, PhD**

Assistant Professor

**Graduate School:** University of Chicago**Residency:** MD Anderson Cancer Center**Anil Sethi, PhD**

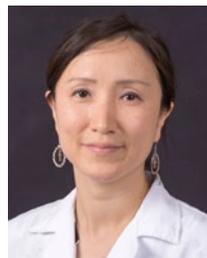
Associate Professor

**Graduate School:** University of Georgia**Residency:** University of Minnesota**Murat Surucu, PhD**

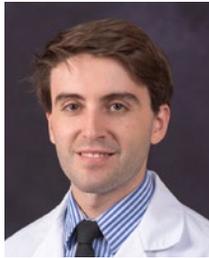
Assistant Professor

**Graduate School:** University of Southern California**Postdoctoral Training:** Washington University in St. Louis**Residency:** University of Chicago

## Radiobiology Faculty

**Eun-Kyoung Breuer, PhD**Assistant Professor, Radiation Oncology  
Molecular Pharmacology and Therapeutics**Graduate School:** Catholic University of Korea**Postdoctoral Training:** The University of Texas/MD Anderson Cancer Center**Fellowship:** Susan G. Komen postdoctoral fellowship at the University of Texas/MD Anderson Cancer Center

## Residents



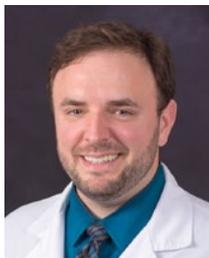
### **Fiori Alite, MD**

PGY-5, Chief Resident

**Undergraduate School:**

Monmouth University

**Medical School:** Drexel University College of Medicine



### **Alec Block, MD**

PGY-4

**Undergraduate School:**

University of Chicago

**Medical School:** Loyola University Chicago, Stritch School of Medicine

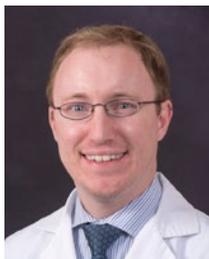


### **Maya Mathew, MD**

PGY-4

**Undergraduate School:** N/A

**Medical School:** Government Medical College, Kottayam, Kerala, India



### **Scott Silva, MD, PhD**

PGY-3

**Undergraduate School:** The University of Texas at Austin

**Medical School:** University of Kentucky College of Medicine



### **Courtney Hentz, MD**

PGY-2

**Undergraduate School:**

University of Cincinnati

**Medical School:** University of Cincinnati College of Medicine



### **Issra Rashed, MD**

PGY-2

**Undergraduate School:**

University of Chicago

**Medical School:** Loyola University Chicago, Stritch School of Medicine

## Physics Resident



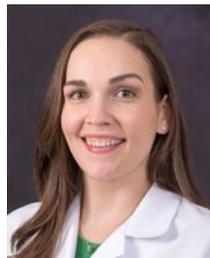
### **Rakesh Patel, PhD**

**Graduate School:** University of Massachusetts

**Fellowship:** Loyola University Chicago

**Residency:** Loyola University Medical Center

## Advanced Practice Nurse



### **Angela Bradford, MSN, APN**

Adult Gerontology Primary Care Nurse Practitioner, Board-Certified

**Graduate School:** Loyola University Chicago

*Loyola's goal is to deliver safe, effective treatments that will help our patients return to their normal lives. We don't just treat your disease. We also treat the human spirit.*

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