About the Cover:

This color composite image of simultaneously acquired, perfectly co-registered angiographic and venous phase CT images of the retroperitoneum was made possible by employing a dual-energy CT scanner and experimental tungsten contrast agent (venous phase, blue) in combination with commercial iodinated iohexol contrast (arterial phase, pink).

The cover image was provided by John Mongan, MD, PhD, a senior resident, Samira Rathnayake, BS, a UCSF Medical Student, Yanjun Fu, PhD, an assistant research scientist, Dong-wei Gao, MD, a specialist, and Benjamin M. Yeh, MD, a professor in residence in the Department of Radiology and Biomedical Imaging.
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Dear Colleagues and Friends,

A key goal in UCSF’s strategic plan is to be the workplace of choice for faculty, staff, students, and trainees. As I prepared to write to you this year, it became obvious that nearly all of our department’s many fine clinical, academic, and educational accomplishments depend on the excellent people we have on our faculty and staff.

Before describing some of Radiology’s “great people,” I must first acknowledge the loss of one of them, Richard Sollitto, MD, who passed away just after Thanksgiving last year (see page 28). Hardly a day goes by without someone in the department mentioning him, laughing about something he said, or remembering his passion for being available to patients and referring physicians. Richard was an incredible supporter of the Margulis Society, and I know he would be proud of the support the Society continues to provide our residents and our educational program. We hope that next year’s Margulis Society Gala (please save the date—April 6, 2013 at the Maritime Museum in San Francisco) will live up to the standard Richard set in previous years.

Since 2008, our Residency program has benefitted from the leadership of one of our best faculty members, Aliya Qayyum, MBBS. While Aliya has decided to focus on her research, she leaves behind one of the top programs in the country, and our residents continue to astound us year after year. Soonmee Cha, MD, professor in residence in Neuroradiology assumed the Residency program leadership in June 2012 and has already impressed us by outlining curriculum changes and section expectations to assist our residents with the new board requirements. Dr. Cha will be assisted by more great people, including assistant program directors at each of our main sites: David Avrin, MD, PhD, at Parnassus; Stefanie Weinstein, MD, at the VA Medical Center, and Thomas Urbania, MD, at San Francisco General Hospital.

We achieved another educational milestone this year with the graduation of our first class of Masters of Science students in Biomedical Imaging. I was especially pleased to have our new MS graduates join our residents at commencement this year. We have now welcomed a new class and at the start of its second year, it is fair to say the program is a great success.

Our faculty are among the best in the country and the world. I want to highlight just a few of the exceptional awards they received in 2012:

- A. James Barkovich, MD, received the Gold Medal from the American Society of Neuroradiology, recognizing his exceptional service and achievement in the field.

- Six members of our neuroradiology and interventional neuroradiology faculty were noted by *US News and World Report* as being among the top one percent of physicians in their specialty: Drs. Barkovich, Cha, Dillon, Dowd, Halbach, and Higashida.

- Charles Higgins, MD, professor emeritus and a recall member of our faculty, was named one of the American Heart Association’s Six Distinguished Scientists for 2012 (see page 22). He joined the ranks of 70 other eminent scientists and researchers “whose significant, original, and sustained scientific contributions advanced the association’s mission of ‘building healthier lives free of cardiovascular disease and stroke.’” This is a distinct honor for Dr. Higgins, because he is one of the few radiologists to receive the award, most often given to cardiologists.

Our PhD scientists continue to receive accolades as well. David Saloner, PhD, director of the Vascular Imaging Research Center at UCSF was elected to the American Institute for Medical and Biological Engineering (AIMBE) College of Fellows in 2012. The AIMBE College of Fellows is comprised of the top two percent of medical and biological engineers in the country (see page 21).
One of the hallmarks of a department full of great people is that they teach and mentor others to achieve their utmost. This year, the UCSF Graduate Students’ Association and the Graduate Division Alumni Association chose Sarah Nelson, PhD, professor of Radiology and director of the Surbeck Laboratory of Advanced Imaging, to receive the Outstanding Faculty Mentorship Award (see page 21). This award shows the extreme respect and appreciation of graduate students toward someone who has provided exceptional mentoring and advice.

And finally, it is fair to say that one of the most flattering acknowledgements that ours is a department of great people is when one of them is recruited away. Many of you worked over the years with Fergus Coakley, MD, chief of the Abdominal Imaging section and vice chair–Clinical Services. In a career at UCSF spanning 14 years, Fergus was an outstanding clinician, educator, researcher, and leader. In August 2012, he became chair of the Department of Radiology at Oregon Health Sciences University in Portland (see page 23). I fully expect Fergus to be extremely successful and to develop his own department of great people that some of you might call on in the future!

Please join us again this year at our RSNA reception on Sunday, November 25, 2012 from 6:30–8:30 PM at the Chicago Cultural Center on Michigan Avenue. I look forward, as always, to seeing you again and hearing your thoughts about how you develop the best academic and staff work force possible in these challenging times.

Sincerely,

Ronald L. Arenson, MD
Color Contrast Agents for CT: Our Future Reality?

John Mongan, MD, PhD, Samira Rathnayake, BS, Yanjun Fu, PhD, Dong-wei Gao, MD, Benjamin M. Yeh, MD

Will multicolored contrast agents one day replace the traditional “white” contrast agents now used for clinical computed tomography (CT) imaging? New research by our group at UCSF suggests that with clinical use of different “colors” of contrast that can be differentiated by color, dual-energy CT scans may not be too far off.

In dual-energy CT (DECT) attenuation is measured simultaneously for each pixel using two different X-ray energy spectra. Analogous to the way two different colored objects with equal brightness might appear identical in a black-and-white photograph, but would be distinguishable in a color photograph, two contrast agents with equal brightness at conventional CT can be distinguished as different colors in DECT. Dual-energy CT data can be computationally processed to differentiate a range of “color” materials, including soft tissue, bone, and iodinated contrast materials.

Preliminary Investigation of Color Contrast

This year, our group at UCSF published the first report on the in vivo use of pairs of color contrast materials that can be distinguished from each other at DECT. Beyond merely possible, we showed how simple it is to do on commercially available CT scanners. Iodine-colored contrast material in the arterial system can be simultaneously imaged with—yet vividly distinguished from—tungsten-colored contrast material in the venous system or bismuth-colored enteric contrast in the bowel. Contrast material no longer needs to be simply “white.”

We investigated the application of this concept in depth in the CT imaging of penetrating abdominopelvic trauma. In addition to vascular contrast, these scans often use positive enteric (oral and rectal) contrast to increase sensitivity for bowel perforation. Since both the vascular and enteric contrast agents have similar (high attenuation) appearance on a conventional CT scan, there is no direct way to determine whether extravasated contrast represents hemorrhage, bowel perforation, or both. Instead, the source of the contrast must be inferred by location and the context of surrounding findings.

We studied an abdominopelvic trauma model with DECT in conjunction with different colored vascular and experimental enteric contrast materials to see if the different colors of the extravasated contrast would help radiologists identify the source. Ten radiologists, spanning a range of experience levels from first-year resident to abdominal imaging attending, evaluated 10 sites of contrast extravasation, first using conventional CT and then using DECT.

The results were revealing: Residents who viewed DECT showed superior diagnostic accuracy than seasoned attending radiologists who had access only to conventional CT. For all readers, trainees and attendings combined, overall accuracy increased from 79% using conventional CT to 92% with DECT scans. Nine of the 10 radiologists improved their accuracy when using dual energy compared to conventional CT. Mean diagnostic confidence also increased from 67% to 81%; these improvements were significant with $p < 0.001$.

Why Now? History of Dual Energy CT

Dual energy CT dates back to the 1970s. In fact, UCSF was the first to publish on clinical DECT scans in a series of papers by David Avrin, MD, PhD, Christopher Cann, PhD, W. Richard Webb, MD, and Henry Goldberg, MD, as early as 1978. Though DECT held much promise, the slow speed
of early scanners prevented widespread use of clinical dual-energy scanning because it required two separate passes, one for each X-ray energy spectrum. The time difference between passes, seven seconds or more, inevitably resulted in image mis-registration and inconsistency in contrast enhancement due to the rapid diffusion of contrast in the body.

Fortunately, technology has advanced substantially in the last 40 years. Modern CT can now capture data from two energy spectra obtained nearly simultaneously. UCSF has the latest commercial dual-energy scanners from General Electric Healthcare installed at the Parnassus, Mt. Zion, and San Francisco Veterans Affairs Medical Center campuses. Though modern DECT scanner technology is still nascent, it has already shown clinical value as a method to determine the material composition of kidney stones, evaluate for lung perfusion defects in patients at risk for pulmonary emboli, differentiate uric acid tophi from abnormal bone formation in gout, evaluate for tumor enhancement in renal masses, improve the detection of hyper- or hypo-vascular tumors, evaluate for iron deposition and fatty liver, and potentially reduce the radiation dose for patients requiring both unenhanced and iodine-contrast material-enhanced CT scans.

From the Lab to the Clinical Scanner
How might clinical CT change if we could simultaneously image two or more contrast materials and be able to tell them apart? The benefits of such a capability should not be underestimated. For example, we may be able to perform two or more different CT exams at once. Patients would gain higher diagnostic yield from fewer CT passes, fewer visits, less risk, and less radiation dose.

Currently, no color CT contrast agents have been approved by the FDA. All currently available CT contrast media are based on iodine or barium, which happen to have nearly identical X-ray color. Gadolinium-based contrast materials, used for magnetic resonance imaging, have a distinct color, but are potentially toxic at the high doses needed for CT.

Realization of the full potential of contrast-enhanced DECT requires the creation of new classes of contrast materials based on atoms that have different X-ray colors than...
iodine and barium. Potential CT agents with a markedly different color include agents based on bismuth, tungsten, tantalum, or even inert gold or platinum.

**Further Applications of Color Contrast**

Many uses are possible for several types of multicolored CT contrast agents, including general vascular and oral agents, targeted agents, and non-liquid agents.

Color vascular and enteric agents may be used concurrently with available iodinated and barium intravascular and oral agents. Combinations of multiple vascular agents will allow high-resolution, co-registered DECT scans to highlight many different vascular beds in multi-organ diseases to minimize ambiguity. Implementation will require carefully timed boluses of these contrast agents, to ensure that each agent is in a different phase of enhancement when a single DECT scan is obtained.

Although the radiation dose of a DECT scanning pass is somewhat greater than a single, conventional CT scanning pass, it is significantly lower than the two or more passes required in a conventional multiphase exam, resulting in a net reduction in radiation dose.

Another advantage of this technique is perfect registration of images between the phases of the scan. In a traditional multiphase scan, the phases are acquired on separate breath holds, so a given lesion may not fall in exactly the same position relative to image slices on each phase. For small lesions in particular, this can raise questions about whether differences in enhancement are real or artifactual due to differences in partial volume effects. Multi-contrast DECT eliminates this problem: since all phases are obtained at the same time in exactly the same position, partial volume effects are identical across the phases.

The use of simultaneous enteric and vascular contrast for conventional abdominal CT has a long history and many benefits. But the major drawback of obscured bowel wall enhancement has led to movement away from routine use of positive enteric contrast. However, when an enteric contrast agent with a different color than the vascular agent is used in conjunction with DECT, the benefits of positive enteric contrast are retained without sacrificing evaluation of bowel wall enhancement.

Targeted agents accumulate in high concentrations in specific tumors, areas of inflammation, or organs. If conjugated to medications, these agents can potentially be converted into “theranostic” or “diapneutic” agents that not only show the location of disease, but combat disease by providing highly concentrated drug delivery to specific disease.
Targeted agents are ideal for concurrent use with intravascular agents that allow precise CT delineation of blood vessels that may be critical for surgical or interventional radiology planning and triage purposes. Non-liquid agents include radiodense gases, such as xenon, that may potentially be differentiated from iodine vascular agents. Such approaches may be used, for example, in high-resolution CT interrogation of the lung to assess ventilation and perfusion in a subsegmental fashion.

The Future of Color-Contrast CT

Now that clinical DECT scanners are becoming widely available, we expect the landscape of CT imaging to change rapidly. The principal barrier to the clinical application of multicolored contrast techniques is the lack of clinically approved differently colored contrast media. Our promising preliminary investigations point to a clear benefit of color contrast agents, but the experimental contrast agents we utilized are currently too toxic for clinical use. When will better agents become available? Time will tell, but probably within 5 to 10 years. We are collaborating with colleagues and industry to develop and test clinically feasible contrast materials. With ongoing work, we fully expect to have a more colorful future as researchers and radiologists.

Acknowledgements

We would like to acknowledge the many contributions of our colleagues, including Ella Jones, PhD, Runtang Wang, PhD, Wilbur Wang, BA, Rahi Kumar, MD, Carlos Forsythe, BS, David Tran, MD, Hing Hung, AS, Tina Hampton, CRT, ARRT, Judy Yee, MD, Jessica Pfannenstiel, BSRT, Elaine Breen-Brown, ARRT, Robert Gould, ScD, Alexander Keedy, MD, Miguel Cabarrus, MD, Rizwan Aslam, MB, ChB, Pierre Cohen, MD, Abby Deans, MD, PhD, Robert Flavell, MD, PhD, Ryan Kohlbrener, MD, Victor Sai, MD, Ruedi Thoeni, MD, Stephanie Weinstein, MD, S. Jarrett Wrenn, MD, PhD, as well as General Electric Healthcare and the UCSF Laboratory Animal Resource Center.

John Mongan, MD, PhD, is a PGY5 diagnostic radiology resident; Samira Rathnayake, BS, is a UCSF medical student; Yanjun Fu, PhD is an assistant research scientist; Dong-wei Gao, MD, is a specialist; and Benjamin M. Yeh, MD, is a professor in residence in the Department of Radiology and Biomedical Imaging.
How Is a Baby’s Brain Wired?—The MRI “Baby Connectome” Gives Answers

Olga Tymofiyeva, PhD, Christopher P. Hess, MD, PhD, Etay Ziv, MD, PhD, Donna M. Ferriero, MD, A. James Barkovich, MD, and Duan Xu, PhD

Babies born prematurely and babies with birth injuries face life-long health consequences. It is very difficult to predict developmental abnormalities in these babies using anatomic imaging, since alterations of connections within the brain can be subtle. At UCSF, we are developing a cutting-edge approach to detecting and monitoring these alterations.

Diffusion magnetic resonance imaging (MRI) and tractography have allowed researchers to reconstruct white matter tracts in the brain for nearly a decade. Recently, this approach has taken one step further with the development of the field of MRI connectomics, which treats the brain as a complex network and applies graph theory to analyze its properties. Our team at UCSF has developed a robust framework for assessing structural connectivity in the newborn brain—the “baby connectome” (Figure 1). We believe that a better understanding of structural connectivity will offer new insights into brain maturation and plasticity, ultimately leading to better diagnosis and treatment.

What is a Connectome?
The human brain is a complex network that is organized on multiple scales. On the microscopic scale, the network is comprised of single neurons and their synaptic connections. On the macro scale, anatomically segregated local brain regions, characterized by short connections, communicate with other local regions via longer inter-regional white matter pathways. The connectome is a relatively new term, introduced in analogy to the genome, and is used

Figure 1 A schematic image of structural connectivity in a six-month-old baby, the so-called “baby connectome.” A whole-brain tractogram (left) obtained from diffusion tensor imaging (DTI) is used to construct a network of cortico-cortical connections (right).
to describe the set of connections of an organism’s neural system. Depending on the scale, one can speak about a microscopic or macroscopic connectome. The complete microscopic connectome at the level of the synapse is known only for the worm *C. elegans*’ nervous system, which has as few as 302 neurons, and obviously cannot be mapped without destroying the tissue.

Recently, it became possible to study the macroscopic connectome non-invasively using MRI. This large-scale connectivity can be investigated using diffusion MRI (structural connectomes) or fMRI (functional connectomes). The structural connectome describes fiber pathways linking brain regions, whereas the functional connectome describes temporal correlations of brain activity.

In this article, we focus on the structural connectivity mapped with diffusion MRI. Diffusion tensor imaging (DTI) measures the anisotropy of water diffusion in the brain. The main anisotropy exists in the white matter as hydrophobic cell membranes, and myelin sheaths hinder water diffusion. Therefore, the main direction of the diffusion tensor reflects the underlying orientation of white matter tracts. We extract this information by performing computational fiber tractography (Figure 2B). The whole-brain tractogram obtained from DTI can be used to construct a network of cortico-cortical connections, usually expressed as a graph (Figure 2C) or connectivity matrix (Figure 2D). A graph is defined as a set of nodes (in our case, brain regions), connected by a set of edges (e.g., white matter tracts). Graph theory-based analysis can be applied to the connectivity matrices for the extraction of important network characteristics, such as node degree, characteristic path length, average clustering coefficient, and the like. Studying the human connectome using network science offers a unique opportunity to better understand...
inter-individual differences in neural connectivity. While most studies examine the adult brain connectome, we are interested in studying the developing brain.

**Framework for Constructing the Baby Connectome**

In general, imaging newborns poses several unique technical challenges. For reliable structural connectivity network construction and characterization, we had to address the following two issues:

1. **Data quality assurance.** Data quality suffers from bulk motion, particularly in unsedated babies. To address this issue, we developed an automated rejection algorithm to identify and discard measurements distorted by motion and to correct the remaining data.

2. **Automated and unbiased definition of network nodes of the connectome.** We needed an automated, yet unbiased cortical parcellation scheme suitable for objective evaluation in the developing brain. In other words, how do we define the nodes of the network? As of yet, there is no single universally accepted parcellation scheme, even for the adult brain. In previous studies of the adult human brain, parcellation into nodes has been based on anatomic templates and landmarks or functional architecture. However, this approach is difficult to realize in the rapidly changing and relatively undeveloped newborn brain. In our project, we developed an unbiased, automated method for parcellating the brain surface based on equal-area sphere partitioning, an approach that is more flexible than atlas-based approaches and that suits the rapidly changing, developing brain. In addition, we developed a network-driven method for determining the optimal number of equal area nodes.

Once we have defined the nodes, we examine every pair of nodes (regardless of location) to determine whether fiber tracts are present that connect them. In this manner, we obtain the connectivity matrix, from which a lot of important network measures can be derived.

**Correlating Network Properties with the Outcome**

With our collaborators in Neurology and Pediatrics—Hannah C. Glass, MD, Sonia L. Bonifacio, MD, and Patrick S. McQuillen, MD—we are looking at the network properties in different clinical populations: prematurely born neonates, babies with hypoxic ischemic encephalopathy (HIE), and babies undergoing surgery for congenital heart defects. Our initial results for the HIE cohort at age six months indicated a correlation of certain global network properties, with the neurological outcome at that age expressed as the neuromotor score. Our long-term goal is to be able to predict which children will have developmental abnormalities at an older age by examining their brain networks shortly after birth. This knowledge will allow the application of appropriate therapies in a timely and targeted manner.

**Maturation of Baby Brain Networks**

Because the baby connectome approach is based on an automated, template-free parcellation scheme, it is suitable for mapping the human brain network at any stage of development. Our current study examines the maturational changes of the structural connectome in subjects of different ages, including premature neonates, term-born neonates, six-month-old infants, and adults. (See Figure 2 for the developmental trajectory of the structural brain network.)

Thus far, we have studied only global network properties, such as the network’s integration, which tells us how efficiently two parts of the brain communicate. The template-free parcellation scheme does not allow for local properties of single nodes, such as the node degree, which can help pinpoint the important hubs of the network, to be compared directly. However, we are working toward the ambitious goal of finding a network-driven common space for the brain. Achieving this goal will enable us to fully characterize the maturation of baby brain networks and will increase our understanding of how brain structure and function develop.

We would like to acknowledge the nurses of the Newborn Brain Research Institute at UCSF for taking care of the newborns and assisting with scans, and Laurel Haeusslein and Veronica de Santiago for coordinating the study.

Olga Tymofiyeva, PhD, is a postdoctoral scholar in the Department of Radiology and Biomedical Imaging; Christopher P. Hess, MD, PhD, is an assistant professor in the Department of Radiology and Biomedical Imaging and Neuroradiology chief at the San Francisco VA Medical Center; Eytai Ziv, MD, PhD, is a diagnostic radiology resident in the Department of Radiology and Biomedical Imaging; Donna M. Ferriero, MD, is the chair of the Department of Pediatrics; A. James Barkovich, MD, is chief of Pediatric Neuroradiology; and Duan Xu, PhD, is an assistant professor in the Department of Radiology and Biomedical Imaging.
Capital Equipment and Technology: Past Year Overview

Robert G. Gould, ScD

Construction to install new and replacement imaging equipment took place in nearly all of Radiology’s locations over the last 12 months. We completed four major projects:

- Constructing three new ultrasound rooms on the third floor of the Ambulatory Care Center (ACC) at Parnassus
- Installing a new low-dose computed tomography (CT) scanner in the main department at Parnassus
- Installing a single-plane angiographic room for body interventional work at Mt Zion
- Installing a new research wide-bore 3T magnet at China Basin

Still underway is the installation of a new SPECT-CT camera in Long Hospital at Parnassus, a project nearly two years in the making.

Parnassus Area

The March 2012 completion of the ultrasound (US) project in the ACC brings the count of US exam rooms there to 5, an expansion by 1 room from the plaza level space formerly used for US outpatient imaging. The project included building a new and more spacious US reading room and created a better space for patients and faculty. We acquired 3 GE Logiq 9 ultrasound units to fill the exam rooms and replace aging US equipment.

Brett Elicker, MD, Cardiac and Pulmonary Imaging chief, and Jessica Pfannenstiel, BSRT, principal radiologic technologist, using the new CT scanner installed in Radiology in Long Hospital.
new facilities and technology

The main Radiology Department at Parnassus has a new GE 750 HD CT scanner, replacing an older 8-slice CT. This is the second such scanner in our system, the other being at Mt Zion. To facilitate image-guided interventions, the new scanner can be activated from within the scan room and images viewed on a ceiling-suspended display beside the gantry. This scanner has dual-energy capabilities and high-resolution imaging. It also uses GE's Veo system to perform a complex iterative reconstruction (IR) that can potentially reduce patient dose considerably more than simpler IR programs such as ASiR, which we now use on our other GE 64-slice CT scanners. The ASiR reconstruction allowed us to reduce dose by up to 40% compared to standard reconstructions, and we anticipate further dose reductions with Veo.

After two years of planning and permitting, the replacement of two nuclear gamma cameras in the main department started in August. This complex project will require more than 5 months of construction to install a SPECT-CT camera, the GE NM/CT 670, a multimodality device consisting of a dual-head gamma camera and a 16-slice CT. This will be the first installation of this gamma camera in a hospital in California. During construction, Parnassus is down to a single, fixed gamma camera and, while some nuclear imaging is being done with portable gamma cameras, the completion of this project will be a relief.

More work has been done on the PACS Data Center, located on the first floor of the Kalmanovitz Library, to decrease its vulnerability to environmental problems. The computer infrastructure located in this computer room produces a large amount of heat, sufficient to overheat the room within an hour. Last year we replaced the UPS and now a larger air conditioning system has been installed. Aside from the expense, the difficulty with this project was how to cool the room while the air conditioner was down.

Mt Zion Campus
Mt Zion was not spared construction during the past year. We remodeled the primary body interventional angiographic room and installed a Siemens Artis Zee ceiling-hung, single-plane unit to replace an image-intensifier-based system. Mt Zion now has state-of-the-art equipment in all imaging areas including angiography, CT, and magnetic resonance imaging.

China Basin
We recently installed a GE 75 wide-bore (70 cm), 3T magnet, filling the previously empty bay adjacent to the GE research 3T magnet (aka the long bore) on the first floor of the China Basin facility. This state-of-the-art system includes a multi-transmit RF coil, multinuclear spectroscopy, and cardiac imaging capabilities. It will be used primarily for research by faculty of both UCSF and San Francisco General Hospital. The Insightec high-intensity, focused ultrasound unit (HIFU) will be moved from the adjacent long-bore MRI system, which has a 55 cm bore, to provide greater flexibility for HIFU procedures.

Projects Being Planned
The design drawings to replace the last of Radiology's <64-slice CT scanners, located in the Radiology Department in Long Hospital, are complete and have been submitted to the State of California for approval, likely a 9-month process. (If you're keeping count, we now have eight CT scanners, not counting PET-CT.) This CT project includes the replacement of an old neurointerventional biplane room, and will considerably alter the Radiology Department in Long Hospital, closing corridors, moving the neurointerventional reading room, and creating an improved patient workflow.

In addition, we are adding 2 radiographic rooms to our equipment in the Ortho Institute, bringing the total to 4 at this location, in addition to a 3T magnet.

Robert G. Gould, ScD, is professor of radiology in residence and vice-chair for Technology and Capital Projects. He oversees the purchase of the department's capital equipment.
Soonmee Cha, MD, professor in residence, assumed the role of program director of the Diagnostic Radiology Program in July 2012. She takes the reins from Aliya Qayyum, MBBS, professor in residence in the Abdominal Imaging Section, who had served in this capacity since 2008.

“Dr. Cha has a strong background in clinical neuroradiology, research, and education at all levels,” said department Chairman Ron Arenson, MD. “And I want to extend my deepest thanks to Dr. Aliya Qayyum for her outstanding leadership of the residency program. I am pleased she and Dr. Cha are working together to ensure a smooth transition.”

Cha received her MD from Georgetown University in 1991 and completed an internship there in 1992. She completed her Radiology residency at the North Shore University Hospital at Cornell University in 1996. Afterwards, she joined the New York University School of Medicine and trained as a Neuroradiology Fellow from 1996–1998. In 1998, she was appointed an assistant professor at NYU. She joined UCSF in February 2002 as an assistant professor in residence. Her promotion to associate professor in residence became effective in July 2005 and she was promoted to professor in residence in July 2011.

Two new assistant residency program directors will work with Cha: Thomas Urbania, MD, at San Francisco General Hospital and Stefanie Weinstein, MD, at the Veterans Affairs Medical Center. They will join David Avrin, MD, the associate program director at Parnassus.

“This team, with Terry Brosnan as program coordinator and Chris Hess, MD, leading the Resident Selection Committee will provide the excellent leadership needed to match our superb residency program,” said Arenson.

Ring Returns as Chief of Radiology at Mt. Zion and ACC

In July 2012, Ernest Ring, MD, professor emeritus of Radiology, returned to the position of Chief of Radiology at UCSF Medical Center at Mt. Zion and the Ambulatory Care Clinic.

Over the 30-year span of his UCSF career, Ring has served in a variety of roles. He was chief of the Interventional Radiology section from 1982–1997. At Mt. Zion, he served as chief of the Radiology Service from 1993–1999, was chief medical officer from 1997–1999 and associate dean from 1997–2001.

From 2001–2004, Ring was chief of Radiology at San Francisco General Hospital. He returned to become the UCSF chief medical officer from 2004–2008. Ring retired in 2008, returning on recall to work in the Interventional Radiology Section at San Francisco General Hospital and Parnassus.

“We all owe Dr. Ring our appreciation and gratitude for his continued service to our department and university,” said department Chairman Ron Arenson, MD.
Montano de Jiménez now Manager of Radiology Postgraduate Education

In June 2012, Silvia Montano de Jiménez became the Manager for Radiology Postgraduate Education. She follows Mary Sheridan who retired in 2012 (see page 26).

Previously, Montano de Jiménez worked as a post-award analyst in the UCSF Department of Neurosurgery, where for the last two years she was responsible for post-award funds analysis and management. From 1992 to 2009, Montano de Jiménez served in various roles, including director with the Pew Programs in the UCSF Center for Health Professions. There, she was responsible for educational program development, contracting, staff development and management, and planned and organized educational conferences including international programs.

“We know Silvia’s background will be extremely helpful as we continue to develop high quality, excellent education for radiologists across the country,” said Cathy Garzio, administrative director for the Department of Radiology and Biomedical Imaging.

New Faculty

Spencer Behr, MD
Assistant Clinical Professor of Radiology
Abdominal Imaging and Nuclear Medicine

Spencer Behr received his medical degree from Tufts University School of Medicine in 2005, followed by a one-year medicine internship at Saint Vincent Hospital in Worcester, Mass. In 2010, he completed a four-year diagnostic radiology residency at the Lahey Clinic Medical Center, Burlington, Mass. Following his residency, Behr completed two one-year fellowships at UCSF; the first in Abdominal Imaging, followed by a fellowship in Nuclear Medicine. Behr joined the faculty of the Abdominal Imaging and Nuclear Medicine sections as an assistant clinical professor in July 2012.
Jonathan W. Blevins, MD  
**Assistant Clinical Professor of Radiology**  
**Musculoskeletal Imaging**  
In 2006, Jonathan W. Blevins completed his medical degree at Georgetown University, School of Medicine, in Washington, DC. He did a transitional medical internship in 2006–2007 at the University of Pittsburgh Medical Center in Pennsylvania, followed by a four-year diagnostic radiology residency at the same institution. Blevins completed a clinical fellowship in Musculoskeletal Radiology at UCSF in 2012. Areas of particular interest to Blevins include sports medicine and orthopedic imaging. In July 2012, he accepted the position of assistant clinical professor of Radiology.

Daniel L. Cooke, MD  
**Assistant Professor of Clinical Radiology**  
**Neurointerventional Radiology**  
Daniel L. Cooke received his medical degree from Emory University in 2004, followed by a one-year General Surgery internship at the University of Hawaii, Honolulu. In 2009, he completed a four-year diagnostic radiology residency at the University of Washington, Seattle. While there, he received an ACR Reeder–Goldberg travel grant (2008) and the University of Washington Neuroradiology Research Award (2009). Following his residency, Cooke completed a two-year Neurointerventional surgical fellowship at UCSF. He has been an author on multiple peer-reviewed publications covering diagnostic and treatment elements of neurovascular diseases. Cooke joined the UCSF Neurointerventional faculty as an assistant professor in July 2012.

Nidhi Azad Gupta, MD  
**Assistant Clinical Professor**  
**Abdominal Imaging, VAMC**  
Nidhi Gupta completed her medical degree in 2006 at the University of Southern California, Keck School of Medicine in Los Angeles. She completed her internal medicine internship at the University of California, Irvine, followed by a four-year diagnostic radiology residency at the University of California, Irvine, followed by a four-year diagnostic radiology residency at Santa Clara Valley Medical Center in San Jose, Calif. Gupta did a one-year Abdominal Imaging fellowship at UCSF in 2011–12 at San Francisco General Hospital and the Veterans Affairs Medical Center. From July–September 2012, Gupta was a Kaiser Permanente pool physician. Gupta accepted the position of assistant professor in Abdominal Imaging at the VAMC in October 2012.
Jung-Jiin (Jason) Hsu, PhD
Assistant Professor in Residence
Center for Imaging of Neurodegenerative Diseases, VAMC
Jung-Jiin (Jason) Hsu received his Masters of Science degree in Physics from National Taiwan University in 1991 and his PhD in Physics from the University of Pittsburgh, Penn., in 2002. Hsu was a postdoctoral fellow from 2002–2007, a research associate from 2007–2008, and a research assistant professor from 2009 until June 2012 at the Lucas Center for Imaging, Stanford University, Calif. His research interests include magnetic resonance physics, imaging instrumentation, and experiment design; quantitative and functional magnetic resonance imaging, discrete-time signal processing, and analysis of functional imaging data; and computational research and computerization. In September 2012, he accepted the position of assistant professor in residence at the Center for Imaging of Neurodegenerative Diseases at the San Francisco Veterans Affairs Medical Center.

Maureen P. Kohi, MD
Assistant Professor of Clinical Radiology
Interventional Radiology
Maureen P. Kohi became an assistant professor of Clinical Radiology in the Department of Radiology and Biomedical Imaging in July 2012. Kohi received her medical degree in 2005 from New York Medical College and completed her radiology residency at UCSF in 2010. While a resident, Kohi completed a research fellowship as a recipient of a NIH/NIBIB T32 Training Grant (2008–2009). Following her residency, Kohi completed a fellowship in Vascular and Interventional Radiology at UCSF in 2010. While a resident, Kohi completed a research fellowship as a recipient of a NIH/NIBIB T32 Training Grant (2008–2009). Following her residency, Kohi completed a fellowship in Vascular and Interventional Radiology at UCSF (2010–2011), followed by a second fellowship in Women's Imaging (2011–2012). During her second fellowship, Kohi was an attending physician in the Vascular and Interventional Radiology section. She enjoys training fellows and mentoring residents. Her primary research interests include interventional oncology and women-directed interventions, particularly high-intensity focused ultrasound and varicose vein ablation.

K. Pallav Kolli, MD
Assistant Professor of Clinical Radiology
Interventional Radiology
In 2006, K. Pallav Kolli received his medical degree from Northwestern University, Feinberg School of Medicine in Chicago, Ill. He did a one-year transitional medicine internship at McGaw Medical Center of Northwestern University in Evanston, Ill., where he was named intern of the year, followed by a four-year diagnostic radiology residency at UCSF, which he completed in 2011. This was followed by a one-year fellowship in Interventional Radiology at UCSF. Kolli's areas of interest include magnetic-resonance guidance for interventional procedures, interventional oncology applications, and venous interventions. In July 2012, Kolli became an assistant professor of clinical radiology in the Interventional Radiology Section at UCSF.
Peder E.Z. Larson, PhD  
Assistant Professor in Residence  
Surbeck Laboratory, Mission Bay  

Peder Larson received both an MS (2003) and a PhD (2007) in Electrical Engineering from Stanford University in Palo Alto, Calif., where his research focused on medical imaging systems, signal and image processing, and magnetic-resonance imaging technology. From 2007–2011, Larson served as a postdoctoral scholar in the Margaret Hart Surbeck Laboratory at UCSF, where his research focused on the development of hyperpolarized carbon-13 MR spectroscopy and imaging methods, including novel RF pulse design and advanced reconstructions. In September 2011, Larson became an assistant professor in residence in the Surbeck Laboratory. Larson’s work continues to focus primarily on hyperpolarized carbon-13 MR spectroscopy and the development of imaging methods for unique biological information and rapid imaging techniques. He also works on semi-solid (short T2) MRI methods in cortical bone and myelin.

Jing Liu, PhD  
Assistant Adjunct Professor  
Cardiovascular Imaging RIG,  
China Basin  

In 2003, Jing Liu received her MS in Electrical Engineering from McMaster University in Hamilton, Ontario, Canada. In 2007 she earned a PhD in Electrical Engineering from the University of Wisconsin-Madison. From 2008–2010, Liu served as a postdoctoral associate in the Department of Radiology at Weill Cornell Medical College, New York, New York. In December 2010, Liu accepted the position of assistant adjunct professor of Radiology in UCSF’s Cardiovascular Imaging Research Interest Group. Her research focuses on developing magnetic-resonance imaging data-acquisition techniques and image reconstruction algorithms for 3D dynamic MRI imaging, including contrast-enhanced MRA, cardiac-cine imaging, and coronary imaging. She is interested in effectively identifying clinically important medical imaging issues and applying solutions directly to clinically relevant problems.

Peter (Buzz) Marcovici, MD  
Assistant Professor of Clinical Radiology  
Pediatric Radiology  

In 2006, Buzz Marcovici received his medical degree from Columbia University’s College of Physicians and Surgeons, New York, New York. He completed a transitional medicine internship at Legacy Hospitals in Portland, Ore. in 2007. This was followed by a four-year diagnostic radiology residency from 2007–2011 at University of California, San Diego. Marcovici completed a one-year fellowship in Pediatric Radiology at Harvard Medical School, Boston Children's Hospital, Mass. in 2012. In addition to Pediatric Radiology, Marcovici is interested in imaging informatics, quality assurance, and teaching. He joined the UCSF Pediatric Radiology section in October 2012 as an assistant professor of clinical radiology.
Andrew Phelps, MD  
Assistant Professor of Clinical Radiology  
Pediatric Radiology  
Andrew Phelps received his medical degree in 2006 from the University of California, San Diego and completed his medical internship at Olive View Medical Center - University of California, Los Angeles in 2007. A four-year diagnostic radiology residency followed at UCSF, where Phelps served as a chief resident in 2010. He later completed a one-year clinical fellowship in Pediatric Radiology at Harvard Medical School, Boston Children’s Hospital in Massachusetts. Phelps’ interests are teaching, anatomy, and medical illustration. In July 2012, Phelps joined the Pediatric Radiology faculty as an assistant professor of clinical radiology.

Andrew G. Taylor, MD, PhD  
Assistant Professor of Clinical Radiology  
Interventional Radiology  
Andrew G. Taylor, received both his medical degree and PhD in biomedical engineering from the University of Pennsylvania in Philadelphia in 2006, followed by a one-year internship in internal medicine at the same institution. In 2011, he completed a four-year UCSF diagnostic radiology residency. In 2012, Taylor completed a fellowship in vascular and interventional radiology, also at UCSF. His areas of particular interest include interventional oncology, especially tumors of the liver and kidneys, venous interventions such as placement and management of IVC filters, and new methods of molecular imaging such as hyperpolarized carbon MRI. Taylor accepted the position of assistant professor of clinical radiology in July 2012.

Silaja Yitta, MD  
Assistant Clinical Professor, Radiology  
Women's Imaging, Mt. Zion  
Silaja Yitta received her medical degree from New York University Medical School in 2006, followed by a one-year preliminary medicine internship at Lenox Hill Hospital in New York. In 2011, Yitta completed a four-year diagnostic radiology residency at NYU Langone Medical Center. Following her residency, she completed a one-year fellowship in Breast Imaging and Ultrasound at UCSF. Yitta’s areas of interest include breast, ultrasound, female pelvis, breast magnetic-resonance imaging, and medical education. Yitta joined the Women's Imaging Section at Mt. Zion Hospital as an assistant clinical professor in July 2012.
Honors and Awards

Ronald L. Arenson, MD

A. James Barkovich, MD
- Recipient, American Society of Neuroradiology Gold Medal Award for exceptional service and achievement in the field of Neuroradiology.

Miles Conrad, MD
- Recipient, San Francisco General Hospital, Robert Lull Non-Medicine Consultant of the Year Award

Brett Elicker, MD
- Promoted to Associate Professor of Clinical Radiology

Christine M. Glastonbury, MD
- Promoted to Professor of Clinical Radiology
- Recipient, Certificate of Merit, Education Exhibit, RSNA 2011
- Recipient, Silver Medal, Education Exhibit, Scientific Program of the American Roentgen Ray Society, 2012

A. James Barkovich, MD, (l) received the ASNR 2012 Gold Medal Award from ASNR President David Hackney, MD, (center), and Judy Donovan-Post (r) chair of the Gold Medal Committee.

Ernest Ring, MD, (r) presented Robert K. Kerlan, MD, (l) with the Outstanding Alumni award, while Ronald L. Arenson, MD, (c) offered congratulations.

Steven W. Hetts, MD
- Visiting Professor, Memorial Sloan-Kettering Cancer Center, New York, “Endovascular Interventional Neuroradiology: State of the Art and Opportunities for the Future”

Charles B. Higgins, MD
- Named American Heart Association Distinguished Scientist
- Named honorary member, Austrian Radiology Society

Robert K. Kerlan, Jr., MD
- Recipient, 2012 Radiology and Biomedical Imaging Outstanding Alumni Award
- Recipient, American Board of Radiology Distinguished Service Award

Kayvan Keshari, PhD
- Named Junior Fellow for excellence in research, International Society for Magnetic Resonance in Medicine

Thomas Lang, PhD
- Appointed an Associate Editor, Journal of Bone and Mineral Research, effective January 2013

Thomas M. Link, MD, PhD
- 2012 Head, Musculoskeletal Section, Scientific Editorial Board, European Radiology
- Elected Editor-in-Chief, Current Radiology Reports, Springer (to be launched in 2013)
- Editor’s Recognition Award with distinction, Radiology
Pratik Mukherjee, MD, PhD
- Keynote Lecturer, “MR Connectomics,” at the 11th International Symposium on Highfield MR in Clinical Applications Conference, September 2012, Bonn, Germany
- Appointed Chair of Neuroradiology and Head and Neck Imaging, RSNA Scientific Program Committee
- Appointed Chair of Neuro Education, International Society for Magnetic Resonance in Medicine Program Committee

David M. Naeger, MD
- Recipient, Excellence in Teaching Award, Haile T. Debas Academy of Medical Educators, UCSF

Sujal Nanavati, MD
- Promoted to Associate Clinical Professor

Srikantan Nagaranjan, PhD
- Recipient, Editors Choice award, *NeuroImage*

Sarah J. Nelson, PhD
- Recipient, 2012 Outstanding Faculty Mentorship Award, UCSF Graduate Students Association and Graduate Division Alumni Association
- Named “2012 Most Influential Woman,” *San Francisco Business Times*

Karen M. Ordovás, MD
- Granted, Masters degree in Advanced Clinical Research, Department of Epidemiology and Biostatistics, UCSF, 2012

Aliya Qayyum, MBBS
- Chair, Association of University Radiologists/Radiology Research Alliance Task Force on "New Health Care Delivery Environment"

Sabrina M. Ronen PhD
- Promoted to Professor in Residence

David Saloner, PhD
- Elected to the American Institute for Medical and Biological Engineering College of Fellows, Class of 2012.

Youngho Seo, PhD
- Promoted to Associate Adjunct Professor

Rebecca Smith-Bindman, MD
- 2012 Scientific Paper of the Year Finalist, The Minnies
- 2012 Invited Participant, Institute of Medicine Report: *Breast Cancer and The Environment: A Life Course Approach*

Lynne S. Steinbach, MD
- Recipient, Outstanding Teaching Award, International Society for Magnetic Resonance in Medicine
- Carmen Lecturer, St Louis, Mo.
- Editor’s Recognition Award with Distinction, *Radiology*
- Certificate of Distinction, *Skeletal Radiology*
- Distinguished Reviewer, *Journal of Magnetic Resonance Imaging*

Lori M. Strachowski, MD
- Recipient, 2012 Radiology and Biomedical Imaging Hideyo Minagi Outstanding Teacher Award

Henry F. VanBrocklin, PhD
- Named Editor-in-Chief, *Molecular Imaging*

Emily M. Webb, MD
- Promoted to Associate Professor of Clinical Radiology

Stefanie Weinstein, MD
- Recipient, Best Poster Award, Society of Gastrointestinal Radiologists, 2012

Antonio C. Westphalen, MD
- Promoted to Associate Professor in Residence
- Editor’s recognition for outstanding reviewer service, *Annals of Internal Medicine.*

Judy Yee, MD
- Recipient, Best Poster Award, Society of Gastrointestinal Radiologists, 2012

Xiaoliang Zhang, PhD
- Recipient, National Natural Science Foundation of China Overseas Award for outstanding research
Nelson Recognized for Teaching and Leadership

Professor Sarah J. Nelson, PhD, director of the Surbeck Laboratory and co-chair of the Department of Bioengineering and Therapeutic Sciences, received two notable honors in 2012. The UCSF Graduate Students Association and Graduate Division Alumni Association honored her with its 2012 Outstanding Faculty Mentorship Award in May. Nelson also was named a “2012 Most Influential Woman” by the San Francisco Business Times.

The Outstanding Faculty Mentorship award recognizes UCSF faculty members "who consistently provide exceptional support, both professional and personally." Graduate students in the Basic Sciences, Nursing, Social & Behavioral Sciences or Physical Therapy, along with other students and postdoctoral fellows nominate candidates for the award.

Nelson’s nominators praised her “strong work ethic, successful research career, practicality, and logic, editorial skills, kindness, and diplomacy,” and noted her ability to reach “across the traditional boundaries to make sure her work is clinically relevant.”

The San Francisco Business Times acknowledgement is given annually to women in leadership in the Bay Area who make a difference in their industries and communities across the Bay Area.

Saloner Elected to AIMBE

David Saloner, PhD, professor in residence and director of the Vascular Imaging Research Center at the VAMC and the Cardiovascular Imaging Research Interest Group in the Department of Radiology and Biomedical Imaging was inducted to the American Institute for Medical and Biological Engineering (AIMBE) College of Fellows, Class of 2012, in Washington, DC in February 2012.

Working in collaboration with colleagues from multiple disciplines across UCSF sites, Saloner has received long-term support from the National Institutes of Health and other agencies to pursue multi-modality imaging in the evaluation of atherosclerosis and aneurysmal disease. A major theme of his research is the links between underlying biomechanical and biochemical factors, principally hemodynamic forces, and disease progression as monitored by non-invasive longitudinal imaging.

Comprised of the top two percent of medical and biological engineers in the country, the AIMBE advocates for the value of medical and biological engineering to society. Since 1991, its College of Fellows has led the way for technological growth and advancement in the fields of medical and biological engineering.
AHA Names Higgins “Distinguished Scientist”

Charles B. Higgins, MD, professor emeritus of Radiology and Biomedical Imaging, received the American Heart Association’s highest honor, Distinguished Scientist, at its 2012 Scientific Sessions meeting. He joined a group of 70 “eminent scientists and researchers whose significant, original and sustained scientific contributions have advanced the association’s mission” and was honored as “a world-renowned leader in cardiac imaging … widely viewed as one of the founding fathers and current leaders of cardiac MRI.”

At UCSF, his clinical and laboratory research focused on cardiovascular applications for magnetic-resonance imaging. Higgins was one of the first to recognize the uptake of gadolinium-based MRI contrast agents into infarcted myocardial tissue (2001) and to suggest its diagnostic benefit. He was an early researcher of flow quantification techniques, applying them to assess the extent of shunt in patients with atrial and septal ventricular defects (1987), and of valvular regurgitation (1988). He also is likely to have been the first researcher to suggest that CT images could be acquired and made into a cine to assess myocardial function (1996).

Garzio Honored for Excellence in Administration

On October 2, 2012, Cathy Garzio, administrative director of the Department of Radiology and Biomedical Imaging, accepted the Association of Administrators in Academic Radiology’s (AAARAD) 2012 award for Excellence in Leadership in the field of radiology administration.

“Cathy is not reluctant to make sound business decisions, yet what really sets her apart is her leadership and her ability to implement decisions with integrity, fairness, and kindness,” said department Chair Ron Arenson, MD. “We recently co-authored the book, A Practical Guide to Leadership and Management in Academic Radiology. Cathy’s input, based on her knowledge and experience in all areas of departmental administration, was vital. We all should be pleased to see her recognized this way.”

Garzio has been in her current role since 2002. She is responsible for all financial and operational activities, including the administration of an $80-million annual budget. Accomplishments under her leadership include improved physician productivity benchmarking, business planning and performance monitoring for clinical equipment, and development of joint venture business and marketing plans. She was key point person in multi-million dollar construction and equipment projects for the Medical Center and Radiology’s China Basin site.

Garzio’s sphere of influence extends well beyond Radiology. She took on administrative director responsibilities for Otolaryngology-Head and Neck Surgery on an interim basis, and recently was asked by the Dean to continue in that department on a permanent basis—in addition to her position in Radiology.
Coakley to Chair OHSU Radiology Department

This summer, Fergus V. Coakley, MD, former chief of the Abdominal Imaging Section and vice-chair of Clinical Services left UCSF to become the Chair of the Department of Diagnostic Radiology at Oregon Health Sciences University School of Medicine, in Portland. “OHSU’s gain is our great loss, but I know Fergus will be a tremendous chair and will make a huge difference at OHSU,” said department Chair Ronald Arenson, MD, in announcing the move.

Arenson noted that Coakley “has built this section into one of the finest clinical and research body imaging divisions in the country” and that “his advice, suggestions and ideas have made this a stronger department.” In 2005, Coakley obtained a T32 Training Grant from the National Institutes of Health, which has allowed more than 20 talented residents to experience the excitement of research.

Coakley also competed for and received a high-end instrumentation grant from the NIH, which allowed the department to purchase an MR-guided focused ultrasound system for the China Basin campus in July 2010. This MRg-FUS program continues under the leadership of Thomas Link, MD, PhD, professor in residence and chief of the Musculoskeletal Section, and Sharmila Majumdar, PhD, professor in residence and vice-chair, Research.

Coakley received his medical degree in 1988 from the Faculty of Medicine, University College, Cork, Ireland. He was a Fellow in Body Imaging at Memorial Sloan-Kettering Cancer Center from 1996–1997 before joining the Abdominal Imaging Section in the Department of Radiology and Biomedical Imaging at UCSF. He returned briefly to Memorial Sloan-Kettering Cancer Center and Weill Medical College of Cornell University in New York as an assistant professor of Radiology from May 2000 through June 2001. Coakley returned to UCSF in June 2001 as chief of Abdominal Imaging and associate professor of Radiology.

He became a professor in residence and vice-chair of Clinical Affairs in 2007.

“He is respected, well liked, and collegial,” said Arenson. “I am very sorry to lose him, but know that he has an outstanding future ahead. We have gained a new competitor, because I am certain that with Fergus Coakley running the department at OHSU, it will not be long before we see it emerging as a strong player within academic radiology circles.”
Retired in 2012

Peter W. Callen, MD

Peter W. Callen, MD, arrived at UCSF in 1969 as a first-year medical student. In June 2012, he retired as a professor in residence. “We all have benefited from Dr. Callen’s dedication to UCSF and the Department of Radiology and Biomedical Imaging, and while we wish him well in his retirement, we also appreciate his willingness to return to the department with a part-time recall appointment,” said department Chairman Ronald L. Arenson, MD.

Callen received his medical degree in 1973 from the UCSF School of Medicine, followed by a one-year medicine internship. As a second-year UCSF diagnostic radiology resident, Callen studied Body Computed Tomography in Manchester, England at a time when there were just a handful of scanners in the world. He served as chief resident in 1976 and completed his residency in 1977. He joined the department’s faculty as assistant professor in residence, rising to associate professor in residence in 1981 and professor in residence in 1986. Beginning in 1981, Callen held a concurrent appointment in the Department of Obstetrics, Gynecology and Reproductive Sciences as a professor in residence.

During his tenure, Callen served on the UCSF Medical School Admissions Committee and numerous departmental committees. He has published more than 200 peer-reviewed articles and is a sought-after lecturer in teaching and continuing medical education. He is well known for his textbook, Ultrasonography in Obstetrics and Gynecology, now in its fifth edition and considered the most widely used book on obstetrical ultrasound in the world. Callen has received numerous teaching awards and in 2011 was honored with the UCSF Radiology and Biomedical Imaging Outstanding Alumnus Award.

When asked about retirement plans, Callen indicated he is “auditing classes in Constitutional and Criminal Law at UC Hastings Law School” and spending his free time “with my family, playing golf, and eating an occasional hot dog.”

Roy L. Gordon, MD

In June 2012, Dr. Roy Gordon retired after more than 20 years of service to the UCSF Department of Radiology and Biomedical Imaging. Announcing Gordon’s retirement, department Chairman Ron Arenson, MD, praised Gordon’s “consummate professionalism and commitment to providing the highest standard of patient care,” through his leadership as associate chair for Safety and former chief of Interventional Radiology.

Gordon completed his medical degree at Oxford University, England and his radiology residency at Hadassah University Hospital, Jerusalem, Israel and the Hospital of the University of Pennsylvania, Philadelphia. He continued at the Hospital of the University of Pennsylvania with a one-year fellowship in Angiography and Interventional Radiology. From 1979–1987, Gordon returned to Hebrew University to serve as chief of Interventional Radiology. He joined the UCSF faculty in 1989, after two years as a visiting professor. In 1997, Gordon became chief of Interventional Radiology at UCSF, a position he held until 2006 when he was named associate chair for Safety.
“Dr. Gordon has been a cornerstone of the department providing expertise in the full gamut of interventional radiology procedures. He developed the very successful uterine fibroid embolization program at UCSF and is a recognized, global expert in interventional biliary radiology,” said Robert Kerlan, Jr., MD, chief of Interventional Radiology. “We will greatly miss Dr. Gordon and are fortunate that he will provide continuing service on a call-back basis.”

**Eileen O’Sullivan**

Eileen O’Sullivan, academic personnel director for the Department of Radiology and Biomedical Imaging, who retired in June 2012, did far more than ensure faculty members’ paychecks were accurate and on time. According to Administrative Director Cathy Garzio, “Eileen elevated the Academic Personnel role in our department and on our campus in a way that is recognized, admired, and appreciated by many faculty and co-workers across UCSF.”

O’Sullivan joined UCSF in 1981 and transferred into Radiology two years later. For several years she provided administrative support in the Chairman’s office, helping to prepare grants and coordinate the fellowship program. At the same time, she completed her bachelor’s and master’s degrees in Clinical Psychology at San Francisco State. In 1994, she took on the position of analyst for department Chair Ron Arenson, MD. In 2003, O’Sullivan was promoted to academic personnel manager, a role she dove into. Over the years, she put into effect processes and systems for a streamlined Radiology Human Resources office.

O’Sullivan had excellent relationships with the research administration and finance teams, and truly understood the connection between faculty funding and excellent post-award grant management. Her attention to detail, polished organization skills, and commitment to doing things right were essential to ensuring faculty members were appointed, re-appointed, and promoted in a timely and correct manner. She handled every flavor of academic HR situation: visas, extensions, changes in series, recruitment, and confidential and public record requests.

“Eileen was a wonderful partner to both me and Dr. Susan Wall on academic affairs, and kept our Merit and Promotions Committee running smoothly and consistently for a decade. She also excelled at developing and promoting her own staff,” said Arenson.

Susan Wall, MD, professor emeritus and vice-chair for Academic Affairs noted that, “It is because of Eileen’s incredible work ethic, knowledge, and skill that the academic advancements of our faculty have progressed on time. We will miss her tremendously, but wish her the very best in this well-deserved retirement.”
Mary Sheridan

Mary Sheridan, manager of Radiology Postgraduate Education (PGE), retired in June after 5 years in that position and more than 12 years at UCSF.

Under Sheridan’s leadership, PGE solidified its reputation for offering quality programs. According to Lynne Steinbach, MD, chair of the Radiology Postgraduate Education Committee, “Mary’s know-how, leadership, and dedication propelled our courses to new heights.”

It is equally important to note that, according to Administrative Director Cathy Garzio, every course PGE offered in 2011/12 was profitable. “Even during the recession, Mary and her team delivered a high-quality product, while minimizing financial risk. Given the importance of these programs to our clinical sections, this is an incredible accomplishment.”

Sheridan’s UCSF career started in the School of Dentistry in 2000, where she administered postgraduate dental education programs. She joined the Department of Radiology and Biomedical Imaging as manager of the Division of Postgraduate Education in 2007. Sheridan’s skills in contract negotiations, marketing, and her attention to detail were instrumental to planning more than 30 individual continuing medical education courses annually in locations ranging from San Francisco to Bermuda.

When asked about her future plans, Sheridan said she intends to travel “without having to oversee a course wherever I am,” spend time with family and friends, return to volunteer activities, and “finally read all the books stacked up on my night table and on my Kindle.”

“Any radiologist who has taken one of our courses knows what Mary contributed to our department’s reputation for academic excellence,” said Chairman Ron Arenson, MD. “I am pleased that she has agreed to return to us on recall for special projects as needed.”
In Memoriam: Frederick R. Margolin, MD, FACR

Hideyo Minagi, MD

It is wrong and foolish to mourn the men who died. Rather we should thank God that such men lived.

—Gen. George S. Patton

My dear friend Frederick R. Margolin, MD, FACR, passed away on May 10, 2012, at age 76. Fred died after he and Myrna, his wife of 54 years, had together waged a long and courageous battle with amyotrophic lateral sclerosis.

After graduating from the University of Miami Medical School in 1960, Fred interned at Los Angeles County Hospital and served two years as an Air Force medical officer in Germany. He completed his diagnostic radiology residency at UCSF in 1967, and was a UCSF faculty member at San Francisco General Hospital before entering private practice at Children’s Hospital, now California Pacific Medical Center (CPMC), in 1968. There, he became Chairman of Radiology in 1978, and served in that capacity until 1992. Fred was the first to envision the Breast Health Center at CPMC and worked tirelessly to see it come to fruition in 1984, when he became its first Medical Director. Under his leadership, the Breast Health Center grew into national prominence as a leader in the battle against breast cancer. Even after his retirement in 2007, he continued to contribute to that unending battle.

Fred’s relationship with the Department of Radiology and Biomedical Imaging endured over the years, including many years of teaching UCSF radiology residents on rotation at CPMC and medical students in the Goldberg Center (Radiology Learning Center).

Few people recall that, prior to dedicating his efforts to breast imaging, Fred was a superb general radiologist, perhaps the best I’ve ever seen.

Our cherished memories of Fred will always include his towering intellect and outrageous sense of humor, and his dedication to, and love of, his family. During his final months and days, all who knew them were in absolute awe of Fred and Myrna’s resolute demeanor, their refusal to give up, their capacity for enjoying whatever life remained for Fred, and their capacity for sharing the gift of laughter, even until the very end.

Let us not mourn Fred’s departure from us so much as we instead thank God that he lived and that we were blessed for having known him.

In addition to Myrna, Fred is survived by his children: Jody Margolin Hahn (husband, Miles Hahn), Elizabeth Brett Garon (husband, Joseph Garon), Lawrence Harry Margolin (wife, Michelle Boucher), and seven grandchildren.

Those who wish to remember Dr. Frederick Margolin with a charitable gift may send a donation to the CPMC Foundation at 2015 Steiner Street, San Francisco, CA 94115. Checks should be payable to CPMC Foundation and reference “The Breast Health Center in honor of Dr. Frederick Margolin.” For questions, please contact Ms. Barbara Lowe, CPMC Foundation, at 415-600-2769 or loweb@sutterhealth.org.
In Memoriam: Richard A. Sollitto, MD

Ronald L. Arenson, MD

Just two weeks after his retirement from UCSF, our friend and colleague, Richard A. Sollitto, MD, associate chair for Radiology-Mount Zion, passed away at home on November 26, 2011 after an illness of several months.

Even in the last weeks of his illness, Richard was charming, gracious, and kind. My admiration of his dignity and courage in the face of a devastating illness grew each time I spoke with him.

Richard Sollitto, MD, received his medical degree from the University of Pennsylvania in 1978. He was an intern in medicine at the Thomas Jefferson University Hospital from 1978–1979, and joined UCSF in 1979 as a diagnostic radiology resident. Following his residency, he completed a one-year Nuclear Medicine Residency in 1983 and joined our faculty as an assistant clinical professor that same year. He was promoted to associate clinical professor in 1989 and to clinical professor in 1995.

Starting in 2003, Richard served as the Section Chief of the Radiology services at the Ambulatory Care Clinics and Mt. Zion Medical Center. In this role, he enhanced service to the Emergency Department and ambulatory care physicians, always emphasizing excellent service and fast turnaround. He was instrumental in expanding the clinical and research services in Women’s Imaging at Mt. Zion and advocated for quality patient care at both sites. He was appointed associate chair for the department in 2007. In this capacity, Richard organized and oversaw special projects, particularly those on the Mt. Zion campus.

Dedicated to resident education, Richard served on the Margulis Society Board of Directors from 1993–2007, including 8 years as president from 1999–2007. He participated in numerous fundraising and membership drives and was a member of the Margulis Society’s Resident Research Review Committee. He also served as a member of the Radiology Resident Selection Committee since 1985. For many years, he chaired or was closely involved in the Margulis Society Gala. His leadership, grace, and extraordinary taste made the Gala a truly special event, filled with style and class, enjoyed by so many of us over the years.

Richard was a great doctor and a true gentleman, who brought to his work a strong ethic of physician and patient service. He was naturally happy, had a positive attitude, and focused on solving problems quickly and proactively. He did not dwell in the past, but embraced change in the department, at Mt. Zion, and at UCSF. Along with many of you, I will miss his advice and friendship. So many of us enjoyed talking with him about music, theater, dogs, medicine, travel, and real estate. We will miss those conversations, his smile, and his old-world demeanor.

He is survived by two brothers and a sister, five nieces, two nephews, and his mother, as well as his beloved dogs, and a legion of friends and colleagues across the country.

Donations in memory of Richard Sollitto, MD, may be made to the Margulis Society, c/o UCSF Foundation, Box 45339, San Francisco, California 94145-0339. For further details please contact Katie Murphy at katherine.murphy@ucsf.edu.
My predecessor, Aliya Qayyum, MBBS, stepped down in June 2012 on a high note. During her four years of leadership, the residency program was re-accredited for five years following a successful ACGME site visit and review in 2009. The number of residents increased and we have approval to grow to a total of 56. She guided the development of a resident educator track, mini-fellowships in Ultrasound and Women’s Imaging, one-on-one evaluations at mid-rotation, and an end-of-rotation exam. She introduced on-line resident conference attendance and evaluations, sectional journal clubs, interdisciplinary conferences, and the transition to a night-float call system. The audience response system was introduced under her watch as was the short evening call shift system, designed to reduce the intensity of the call experience. Residents, faculty, and administrative staff thank her for all she has done to steward and sustain the program as one of the top radiology residencies in the country.

As I write this article, six weeks into becoming the new program director, I am convinced I have found my calling. I have always been interested in resident education and training, now I have an official title to go along with my passion for educating, nurturing, and inspiring the future leaders of radiology. I have met with all residents. They all have unique and interesting backgrounds, aspirations, and personalities, but all share a genuine warmth, intelligence, and decency. They have embraced their rookie program director with open arms. I am incredibly lucky to take on this new role supported by three outstanding chief residents, S. Jarrett Wrenn, MD, PhD, Kevin Koo, MD, and Victor Sai, MD, who take their job with utmost responsibility, joy, and conviction. David Avrin, MD, PhD, associate program director, will continue to be the backbone of the program’s behind-the-scene and data-driven operations. New to the program are two assistant program/site directors: Stefanie Weinstein, MD, at the Veterans Affairs Medical Center and Thomas Urbania, MD, at San Francisco General Hospital, who have already had positive impacts on the resident education and training at each site. Christopher Hess will spearhead our residency recruitment process. This team will advocate for and support our residents’ daily endeavors and nurture their potential.

In terms of resident accomplishment, this past year was yet another year of spectacular results. Our residents continue to pursue academic and research excellence while taking on the daily responsibilities of clinical rotations, and each appreciates the opportunity and support our program offers.

This academic year will bring an important change. Oral board examination as we know it will end in June 2013, to be replaced with a computer-based CORE examination in October. The new exam will cover 15 radiology disciplines, including physics. We are preparing for the change by involving residents and faculty with specific assignments based on the CORE guidelines. We hope to turn this process into a systematic and joyful learning exercise.

I look forward to working with our new team of directors and our superb residents, faculty, and administrative staff to make sure our radiology residency program remains one of the best in the world.
Resident Accomplishments 2011–2012

Awards

Thomas A. Hope, MD: RSNA Roentgen Resident/Fellow Research Award, 2012; co-recipient, Margulis Society Research Award, 2012

Nazia Jafri, MD: Elmer Ng Award, presented to outstanding resident, 2012

Aaron Miracle, MD: SFGH Julius R. Krevans Award presented to outstanding first-year resident for excellence in patient care


Jason Talbott, MD, PhD: Co-recipient, Margulis Society Research Award, 2012

Service

Marjan Bolouri, MD: Resident Representative, UCSF Graduate Medical Education Committee

Marcel Brus-Ramer, MD, PhD: President-elect, Residents and Fellows Section, California Radiological Society

Ingrid M. Burger, MD, PhD: Resident Representative, The Margulis Society

Stephanie Hou, MD: Resident Representative, Radiation Oversight Committee; Resident Representative, UCSF Graduate Medical Education Committee; Member, UCSF Fellow and Resident Advisory Group for APeX

Nazia Jafri, MD: Member, News Editorial Board, RSNA

Kevin Koo, MD: Chief Resident, 2012; vice president, American Alliance of Academic Chief Residents in Radiology

Anand Patel, MD: President, Residents and Fellow Section, California Radiology Society; Resident Representative, The Margulis Society

Sara Plett, MD: Resident Representative, The Margulis Society

Victor Sai, MD: Chief Resident, 2012; president, American Alliance of Academic ChiefResidents in Radiology; Resident Representative, The Margulis Society

Jay Starkey, MD: Member, Education Committee, American Society of Neuroradiology

S. Jarrett Wrenn, MD, PhD: Chief Resident, 2012

Presentations and Posters


Marjan Bolouri, MD: MRI to FDG-PET Correlation in Invasive Breast Cancer: Differences Among Triple Negative Subtypes. Accepted, RSNA Annual Meeting 2012


Stephanie Hou, MD: Impact of Importing Outside Hospital Imaging on Care for Patients Transferred for Neurointerventional Treatment of Acute Ischemic Stroke: A Preliminary Evaluation. Hou SW, Hetts SW, Avrin D, Urbania T. Accepted, RSNA Annual Meeting 2012


**John Mongan, MD, PhD:** Trauma Imaging with Color Contrast for Color CT: In vivo Use of Complementary Contrast Materials at Dual-energy Computed Tomography. Mongan, MD, PhD, San Francisco, CA; S Rathnayake; Y Fu, PhD; M C Cabarrus, BS; B M Yeh, MD, oral presentation, RSNA Annual Meeting, 2012; Improving Efficiency of Pulmonary Embolism Testing in Young Female Patients. Mongan, J A Kline, R Smith-Bindman, oral presentation Alternate/Poster Presentation, RSNA Annual Meeting, 2012


**Publications**


**Stephanie Hou, MD:** Enterprise Imaging: Planning and Business Justification. Avrin D, Hou SW. Acad Radiol. 2012 Feb;19(2):214-20


**Michael T. Lu, MD:** Reducing the Rate of Repeat Imaging: Import of Outside Images to PACS. Lu MT, Tellis WM, Fidelman N, Qayyum A, Avrin DE. AJR Am J Roentgenol. 2012 Mar;198(3):628-34

John Mongan, MD: In Vivo Differentiation of Complementary Contrast Media at Dual-Energy CT, Mongan, J, Rathnayake, S, Fu, Y, Wang, R, Jones, E, Gao, DW, Yeh, BM. Radiology. 2012 Jul 10. [Epub]; Dual-contrast Dual-energy Computed Tomography for Improved Diagnosis of Extravasated Contrast in Penetrating Abdominopelvic Trauma. Mongan J, Rathnayake S, Y Fu, Gao DW, Yeh BM. Radiology (accepted)


Jay Starkey, MD: Starkey J, Maeda S. Earthquake in Japan. Lancet. 2011 May 14;377(9778):1653


Grants

Amaya Basta, MD: NIH T-32 Training Grant
Matthew Bucknor, MD: Margulis Society Research Grant Award; UCSF Radiology Seed Grant; NIH T-32 Training Grant
Abby Deans, MD, PhD: UCSF Radiology Seed Grant
Yuo-Chen Kuo, MD: NIH T-32 Training Grant
Ginger Merry, MD, MPH: American College of Radiology Goldberg-Reeder Resident Travel Grant
John Mongan, MD: UCSF Radiology Seed Grant; NIH R21-EB013816 Grant
Anand Patel, MD: NIH T-32 Research Grant Recipient; UCSF Radiology Seed Grant; UCSF Margulis Society Resident Research Grant
Victor Sai, MD: UCSF Radiology Seed Grant
Etay Ziv, MD, PhD: UCSF Radiology Seed Grant
In the last year of her residency, Ginger Merry, MD, MPH, had the extraordinary opportunity to spend four weeks in Uganda. Together with two team members from the University of Vermont, she trained physicians and sonographers, and piloted a breast cancer diagnosis algorithm at the rural Kamuli Mission Hospital. Merry received an ACR Goldberg-Reeder Travel Grant from the American College of Radiology for the project. Here are her first-hand impressions:

Currently in Uganda, imaging breast masses is not a standard component of the work-up of a breast mass in rural settings. Mammography is not available, and ultrasound machines are present, but the sonographers have not been trained in breast ultrasound. Instead, palpable breast masses are biopsied using palpitation or are surgically excised.

Working with Dr. Kristen DeStigter (radiologist and program director at University of Vermont) and Mary Streeter (a sonographer from Vermont), we spent our first week teaching the sonographers at the rural Kamuli Mission Hospital to take cine images of a palpable mass and training the doctors to perform ultrasound-guided biopsies. The pilot was a great success. We demonstrated that ultrasound for breast imaging and sampling can be done and that staff are willing and eager to incorporate it into their breast cancer diagnosis algorithm.

Next, we traveled to Kampala, the capital city, for a Stakeholders Meeting of more than 50 attendees: radiologists, surgeons, pathologists, ministry of health representative, and the staff from Kamuli Mission Hospital. I presented background information on breast cancer in Uganda and described our project in detail. Dr. DeStigter and Alphons Matovu, MD, a breast cancer surgeon in Uganda, led an excellent discussion which generated many great ideas for improving the project.

In addition to doing more training and gathering data in Kamuli, I also gave lectures on breast imaging, pelvic ultrasound, and ultrasound-guided procedures to radiology residents at Makerere University (the only radiology training program in Uganda) and sonography students at the Ernest Cook Ultrasound Research and Education Institute. The radiology students were especially excited to have a hands-on practice session in core and fine needle aspiration biopsy technique using breast phantoms. Their first experience practicing on non-patients was a huge success!

My time in Uganda was invaluable. I am now working with our collaborators in Uganda to finalize the Institutional Review Board submission for a full-scale project proposal and am applying for larger-scale funding. To see more of what we did, our blog is at http://imagingtheworld.org/blog/.
First-Year Diagnostic Radiology Residents 2012

Vignesh Arasu, MD

MD 2011 University of California, San Francisco, School of Medicine


Honors and Awards:

2012 Herbert M. Stauffer Award, AUR

2012 Featured profile ‘Research Medical Student Grantee is Improving Tools for Women’s Imaging,’ RSNA R&E Foundation Focus, Fall 2012 issue (http://rsna.org/VigneshArasuMD.aspx)

Research:

2007–2012 University of California, San Francisco, Dept. of Radiology and Biomedical Imaging

Selected Publications:


Eric Ehman, MD

MD 2011 Mayo Medical School, Rochester, Minn.

2011–2012 Internship, Santa Clara Valley Medical Ctr., Calif.

Honors and Awards:

2010 Alexander R. Margulis First Time Presenter Award, SGR

2009 Medical Student Research Trainee Prize, RSNA

Research:

2006–2011 Mayo Clinic, Rochester, Minn.

Selected Publications:


Kimberly Kallianos, MD
MD 2011 Harvard Medical School, Boston, Mass.
Research:
2009–2010 Cardiac MR, PET CT Program, Massachusetts General Hospital, Boston
Selected Publications:

Rahi Kumar, MD
MD 2011 University of California, San Francisco, School of Medicine
Research:
2009–2010 Howard Hughes Medical Institute Fellowship, UCSF
Selected Publications:

Yi Li, MD
MD 2011 Harvard Medical School, Boston, Mass.
2011–2012 Beth Israel Deaconess Medical Ctr., Boston, Mass.
Research:
2009–2011 Dana Farber Cancer Institute, Boston, Mass.
2006–2011 Beth Israel Deaconess Medical Ctr., Boston, Mass.
Selected Publications:
Christopher Mutch, MD, PhD
MD 2011 Northwestern University, Feinberg School of Medicine, Chicago, Ill.
PhD 2009 Northwestern University, The Graduate School, Evanston, Ill.
2011–2012 Internship, University of Chicago, Northshore Health Sys., Ill.
Honors and Awards:
2009 Morton Heller Exemplary Research Award, Northwestern University, Evanston, Ill.
Research:
2002–2011 NIH Medical Scientist Training Program, Northwestern University, Chicago, Ill.
2004–2009 Dept. of Pathology, Northwestern University, Evanston, Ill.
Selected Publications:

Hriday Shah, MD
MD 2011 University of Michigan Medical School, Ann Arbor, Mich.
Honors and Awards:
2011 Roger A. Berg Prize in Radiology, University of Michigan Health Sys.
Research:
2007–2012 Departments of Cardiology, Plastic Surgery and Radiology, University of Michigan Health Sys.
Selected Publications:

Christopher Starr, MD, PhD
MD 2011 Wake Forest University, Winston-Salem, N.C.
PhD 2009 Wake Forest University, Winston-Salem, N.C.
2011–2012 Internship, Santa Clara Valley Medical Ctr., Calif.
Research:
2004–2009 Neurobiology and Anatomy, Wake Forest University, Winston-Salem, N.C.
Selected Publications:


Javier Villanueva-Meyer, MD
MD 2011 Baylor College of Medicine, Houston, Tex.
2011-2012 Internship, Virginia Tech Carilion School of Medicine, Roanoke, Va.

Research:
2010 Beth Israel Deaconess Medical Ctr., Boston, Mass.
2010 The Methodist Hospital, Neurointerventional Radiology, Houston, Tex.

2009-2010 Baylor College of Medicine, Houston, Tex.

Selected Publications:

Sophia Virani, MD
MD 2011 Harvard Medical School, Boston, Mass.
2011-2012 Internship, Massachusetts General Hospital, Boston, Mass.

Research:
2007-2011 Dana Farber Cancer Institute, Boston, Mass.

Selected Publications:

Genevieve Woodard, MD, PhD
MD 2011 University of Pittsburgh, Penn.
PhD University of Pittsburgh, Penn.
2011-2012 Internship, University of Pittsburgh Medical Ctr., Penn.

Honors and Awards:
2010 Outstanding Doctoral Student Award, Graduate School of Public Health, University of Pittsburgh

Research:
2006-2011 University of Pittsburgh, Penn.

Selected Publications:

Melinda Jean Yeh, MD

MD 2011 University of California, San Diego

2011–2012 Internship, Cedars-Sinai Medical Center, Los Angeles, Calif.

Honors and Awards:

2007 Computer Science and Engineering Award for Excellence and Leadership, University of California, San Diego

Research:

2008 NIH Short-term Research Training Grant Program, UCSD

Selected Publications:


Second, Third, and Fourth-Year Diagnostic Radiology Residents 2012–2013

Second-Year Residents

Jacob D. Brown, MD, PhD
Marcel Brus-Ramer, MD, PhD
Nicholas Burris, MD
Matthew L. Eltgroth, MD
Robert R. Flavell, MD, PhD
Elisabeth Garwood, MD
Patrick C. Gonzales, MD
Ryan Kohlrenner, MD
Valentin Lance, MD
Marc Mabray, MD
Aaron C. Miracle, MD
Sara K. Plett, MD
David Valenzuela, MD

Third-Year Residents

Ramon F. Barajas, Jr., MD
Amaya M. Basta, MD
Nancy J. Benedetti, MD
Stephanie Hou, MD
Akash Kansagra, MD
Yuo-Chen Kuo, MD
Parham Moftakhar, MD
Dare Olorunsola, MD
Anand S. Patel, MD
Jay Starkey, MD
Ricky T. Tong, MD, PhD
David N. Tran, MD
John-Paul Yu, MD, PhD

Fourth-Year Residents

Marjan Bolouri, MD
Matthew Bucknor, MD
Abby Deans, MD, PhD
D. Thor Johnson, MD, PhD
Lauren Hollowell, MD
Alexander Keedy, MD
Kevin Koo, MD, Chief
John Mongan, MD, PhD
Victor Sai, MD, Chief
Ronnie Sebro, MD
Leo Sugrue, MD, PhD
S. Jarrett Wrenn, MD, PhD, Chief
Etay Ziv, MD, PhD
Clinical Fellows and Instructors 2012–2013

Clinical Fellows:
Eric Aaltonen, MD
*Interventional Radiology*
Vishal K. Agarwal, MD
*Interventional Radiology*
Saad Ali, MD
*Neuroradiology*
Patrick Alore, MD
*Abdominal Imaging*
Ania J. Azziz, MD
*Women’s Imaging/Ultrasound*
Ingrid Burger, MD, PhD
*Women’s Imaging/Ultrasound*
J. Levi Chazen, MD
*Neuroradiology*
Gurpreet Dhillon, MD
*Women’s Imaging/Ultrasound*
Matthew Epstein, MD
*Musculoskeletal Radiology*
Ankur Garg, MD
*Musculoskeletal Radiology*
Rita Gidwaney, MD
*Women’s Imaging/Ultrasound*
Keith Herr, MD
*Abdominal Imaging*
Roozbeh Houshyar, MD
*Abdominal Imaging*
Maowen Hu, MD, PhD
*Women’s Imaging/Ultrasound*
Nazia Jafri, MD
*Women’s Imaging*
Jane Kim, MD
*Pediatric Radiology*
Warren Kim, MD, PhD
*Neuroradiology*
Peter Lokken, MD
*Interventional Radiology*
Dustyn Marshall, MD
*Interventional Radiology*
Jan Mazura, MD
*Neuroradiology*
Hugh McSwain, MD
*Neuroradiology*
Jeffrey Meier, MD
*Abdominal Imaging*
Tara Morgan, MD
*Abdominal Imaging*
Jared Narvid, MD
*Neuroradiology*
Michael Ohliger, MD, PhD
*Abdominal Imaging*
Brian Park, MD
*Cardiac and Pulmonary Imaging*
Priyesh Patel, MD
*Musculoskeletal Radiology*
Gregory Punch, MD
*Neuroradiology*
Jennifer Saline, MD
*Women’s Imaging*
Naomi Schwarz, MD
*Abdominal Imaging*
Andrew D. Scott, MD
*Abdominal Imaging*
Tony Sedlic, MD
*Cardiac and Pulmonary Imaging*
Evan Sirc, MD
*Nuclear Medicine*
Charles Stout, MD
*Neuroradiology*
Jason Talbott, MD, PhD
*Neuroradiology*
Benita Tamrazi, MD
*Neuroradiology*
Khoa Tran, MD
*Abdominal Imaging*
Wayne Tran, MD
*Nuclear Medicine*
Karen Wallace, MD
*Abdominal Imaging*
Peggy Wu, MD
*Women’s Imaging/Ultrasound*

Clinical Instructors:
Matthew Ammans, MD
*Neuroradiology/NeuroInterventional Radiology*
Gerritt Lagemann, MD
*Neuroradiology*
Chia-Shang Jason Liu, MD, PhD
*Neuroradiology*
Jessica Tan, MD
*Neuroradiology*
Bruno Soares, MD
*Neuroradiology*
Diagnostic Radiology Residency Graduates–Class of 2012

Congratulations to our 2012 graduates. We wish them success in their new fellowship positions.

Vishal K. Agarwal, MD
Fellowship, Interventional Radiology, UCSF

Ania J. Azziz, MD
Fellowship, Women's Imaging, UCSF

Ingrid M. Burger, MD, PhD
Fellowship, Women's Imaging, UCSF

Renu M. Chundru, MD
Fellowship, Neuroradiology, Cornell University, N.Y.

Thomas A. Hope, MD
Fellowship, Nuclear Medicine and Body MRI, Stanford University, Calif.

Nazia F. Jafri, MD
Fellowship, Women's Imaging, UCSF

Marc A. Laberge, MD
Fellowship, Musculoskeletal and Spine Imaging, National Orthopedic Imaging Assoc., San Francisco, Calif.

Michael T. Lu, MD
Fellowship in Cardiothoracic Imaging, Massachusetts General Hospital, Boston, Mass.

Ginger Merry, MD, MPH
Fellowship, Women's Imaging, Northwestern University, Chicago, Ill.

Michael Ohliger, MD, PhD
Fellowship, Abdominal Imaging, UCSF

John G. Schneider, MD
Fellowship, Emergency Radiology, Massachusetts General Hospital, Boston, Mass.

Jason F. Talbott, MD, PhD
Fellowship, Neuroradiology, UCSF

Kia Vahidi, MD
Fellowship, Body MRI/Women's Imaging, University of Southern California, Los Angeles

2012 Diagnostic Radiology Residency Graduates: (l–r top row) Vishal K. Agarwal, MD, Thomas A. Hope, MD, Michael Ohliger, MD, PhD, Ingrid Burger, MD, PhD, John G. Schneider, MD, Renu Chundru, MD, Marc Laberge, MD, Ginger Merry, MD, MPH, Jason Talbott, MD, PhD (l–r bottom row) Michael T. Lu, MD, PhD, Nazia Jafri, MD, Kia Vahidi, MD, Ania J. Azziz, MD
The first class of 13 students completed the Masters of Science in Biomedical Imaging (MSBI) program in 2012. The graduates, who hail from across and outside the U.S., received their diplomas from UCSF’s Graduate Division and were recognized at the Department of Radiology and Biomedical Imaging’s commencement ceremony.

The core courses in the MSBI program deliver in-depth training in the principles of in vivo imaging modalities. Students also choose from a wide set of electives related to imaging applications for major diseases and different organ systems. The program covers topics such as Image Processing, and Research Study Design. Following their coursework, students bring the different elements of their learning together in applied research projects, working with faculty supervisors or as interns with industry partners.

Students benefited from the wide range of the department’s state-of-the-art imaging facilities to obtain hands-on imaging experience. Students were extremely appreciative of the high caliber of lectures that are broadly available, not only within the department, but across the UCSF campus.

In its first year, the MSBI program was led by the co-chairs of the program committee who created its structure, Sharmila Majumdar, PhD, and David Saloner, PhD. This year, Saloner has taken on the role of program director. Director of Graduate Studies, Professor Alastair Martin, PhD, defined program logistics and was the liaison between students and faculty, assisted by Program Administrator Robert Smith, who capably addressed students’ day-to-day concerns, from the professional to the personal.

Graduates and MSBI Look Ahead

The MSBI students thrived on the small class size, which gave them easy access to the faculty and helped them form a cohesive, collaborative group. One student commented, “The people in the program, from students and instructors to administrators, make it an exceptional experience. This program revolutionized what I see for myself in the future, and has made me even more excited to go to medical school and build upon what I’ve learned here. I will always cherish this experience for what I’ve learned, the passion it has sparked in me, and the friends I have made.”

Several class members have chosen to attend medical school. Some are pursuing opportunities with commercial operations such as pharmaceutical companies that use imaging studies to investigate drug efficacy, while others are exploring research opportunities.

The program welcomed its second class of students with the Fall semester. This year, the program will offer increased emphasis on developing ties to companies that can offer students internship opportunities and insights into the needs of the wider imaging community.
Anatomy Education Moves Forward at the Henry I. Goldberg Center for Advanced Imaging Education

This fall marked the opening of a brand new, state-of-the-art anatomy lab in the UCSF School of Medicine. Now that we have additional classroom space and students have access to computers in the Anatomy Lab, we are able to integrate more radiology into the curriculum, using “virtual” education tools. Pre-clinical students will now have ready access to X-ray and computed tomography images for anatomic correlation in the main dissection space. Additionally, faculty members, led by Miles Conrad, MD, have been working with the UCSF Anatomy Department to develop a new curriculum using ultrasound as an educational tool. These ultrasound sessions will take place in a classroom adjacent to the Anatomy Lab and will give small groups of students the opportunity to work directly with radiologists to learn about the basics of ultrasound imaging, as well as human anatomy.

Another innovation this academic year is the expansion of radiology’s footprint in the third-year curriculum. This is a critical time, when students are making decisions about their future careers on the basis of experiences during their core rotations. Because Radiology electives typically are not offered until the fourth year, there has been a relative lack of exposure to radiology. However, David Naeger, MD, developed a radiology lecture series geared specifically towards students on the wards. The lectures will be incorporated into the classroom-based “intersessions” that occur between core rotations. This will expose students to radiology earlier in the context of their clinical rotations, and teach them the basic skills and information needed to excel on the wards.

Last year, using funds from the Hideyo Minagi Endowed chair, we started supporting selected faculty in projects such as developing a new radiology curriculum for the School of Medicine, fostering teaching skills development, and promoting educational research in radiology. Our goal is to develop a cadre of skilled educators who are interested in pursuing medical education as a primary career focus. This year, Brett Elicker, MD, Emily Webb, MD, David Naeger, MD, Miles Conrad, MD, Jesse Courtier, MD, Tom Urbania, MD, and Elissa Price, MD, are participating.

The faculty and resident members of the Medical Student Education Committee supervise the Goldberg Center’s academic activities. New faculty members on the Committee this year include Price and Conrad. Nancy Benedetti MD, is the new Resident Liaison for Medical Student Education Continuing members of the committee include: Elicker, Naeger, Webb, and Vickie Feldstein, MD, Stefanie Weinstein, MD, Lynne Steinbach, MD, and Khai Vu, MD.

Additionally, many UCSF faculty, volunteer faculty, fellows, and residents give generously of their time in our programs. Their efforts are very appreciated, particularly by the UCSF medical students who benefit directly from their contributions and time.

For more information about the Goldberg Learning Center’s activities, please contact Melinda Parangan-Chu (Melinda.Parangan-Chu@ucsf.edu) or visit our website at www.radiology.ucsf.edu/education/medical-students.

The Henry I. Goldberg Center for Advanced Imaging Education is the headquarters for all medical student education in the Department of Radiology and Biomedical Imaging. The Center oversees radiology instruction in the pre-clinical core curriculum, provides imaging workshops during clinical clerkships, offers a variety of radiology electives spanning both clinical applications of Radiology and imaging research, and offers career advising and mentoring to UCSF medical students.
Alumni News

1967
Charles A. Gooding, MD, and Gretchen A.W. Gooding, MD, (resident, 1975), Mill Valley, Calif., celebrated their 51st wedding anniversary in Carmel, Calif.

1970
Frank D. Mainzer, MD, San Francisco, Calif., received the Outstanding Clinical Faculty Award at UCSF’s Department of Radiology and Biomedical Imaging Commencement.

1974
Peter S. Moskowitz, MD, Palo Alto, Calif., will retire as clinical professor of Radiology at Stanford School of Medicine and staff radiologist at Lucile Packard Children’s Hospital at Stanford, in December 2012. He will continue to serve as executive director of the Center for Professional and Personal Renewal in Palo Alto (www.cppr.com), serving the life and career coaching needs of physicians nationwide.

Moskowitz was the founder and first president of the Board of the UCSF Margulis Society. He will continue to serve on its Board of Directors.

1981
William G. Bradley, MD, San Diego, Calif., chairman of the Department of Radiology at University of California, San Diego, was awarded the American College of Radiology’s highest honor, the ACR Gold Medal, for distinguished and extraordinary service to the ACR and to the discipline of radiology.

1985
David Steinberg, MD, Las Vegas, Nev., is the managing partner of Steinberg Diagnostic Medical Imaging (SDMI) with five imaging centers located throughout the Las Vegas and Henderson area and a sixth center set to open in early 2013 in Centennial Hills. SDMI employs 21 physicians and more than 300 staff. In February 2013, SDMI (www.sdmi-lv.com) will celebrate 25 years of imaging excellence.

Board-certified in Diagnostic Radiology and Nuclear Cardiology, Steinberg is a Distinguished Fellow of the American College of Nuclear Medicine. He and his wife Betsi have two children. In his spare time, he enjoys fly fishing, traveling, skiing, hiking, and bicycling; but mostly enjoys spending time with his family.
1986
Diane Newton, MD, Boise, Idaho, shares a photo from RSNA 2011 and writes “I am doing well, practicing 100% neuroradiology out of my home via teleradiology, for a group called Radisphere. My daughter, Kate Mueller, is married and has (an absolutely adorable) 4 year-old son. Her family just moved to Stratford-Upon-Avon, England, where Kate is getting her graduate degree at the Shakespeare Institute, part of the University of Birmingham. She and her husband Michael are both in the theater/acting world.”

(l-r) Bill Dillon, MD, Diane Newton, MD, (daughter of longtime UCSF neuroradiologist T. Hans Newton, MD) with her daughter Kate Mueller and Chair Ron Arenson, MD.

1990
Debra L. Monticciolo, MD, Temple, Tex., was appointed to the American College of Radiology Board of Chancellors and named Chair of the Commission on Quality and Safety of the ACR in April 2012. This commission is the largest in the College and is responsible for Guidelines and Technical Standards, Appropriateness Criteria, all Accreditation Programs, RADPEER, Metrics, and the National Registries in Diagnostic Radiology. She also is president and chairwoman of the Society of Breast Imaging and chairs the American Institute of Radiologic Pathology’s Education Advisory Board.

1998
Michael B. Gotway, MD, of Scottsdale, Ariz., left Scottsdale Medical Imaging to join Mayo Clinic in Scottsdale as a cardiothoracic radiologist and senior associate consultant. He sent a recent photo and writes “my daughter Allison turned six this year and started kindergarten.”

1998
Jessica W.T. Leung, MD, of San Francisco, Calif., was inducted as a Fellow in the American College of Radiology. She is the medical director of the Breast Health Center and a vice-chairperson of the Dept. of Radiology, California Pacific Medical Center, San Francisco.

2000
Christopher J. Schultz, MD, Yountville, Calif., sends a recent family photo and writes: “this photo is from Sedona where we enjoy (not frequently enough) a second home and love of the Red Rocks. We have had a recent move up-valley to Yountville were we live on a five- acre country property. Despite living in the heart of the wine country, we prefer craft beers and have taken to all-grain home brewing.” Schultz is the chief of MR and Body Imaging and director of the Napa Valley Imaging Center, Queen of the Valley Medical Center, Napa, Calif.

The Schultz family: Sheila, an internist at Kaiser-Permanente, Napa, Chris, 5-year-old Kingston, 10-year-old Presley, and Kennedy, age 7, in Sedona, Ariz.

Allison Gotway and proud papa Mike.
2003
Raymond H. Thornton, MD, New York, N.Y., has been appointed vice-chair of Radiology for Quality, Safety and Performance Improvement; program director of the Vascular Interventional Radiology fellowship; and associate attending radiologist on the Vascular Interventional Radiology faculty at Memorial Sloan-Kettering Cancer Center.

2005
Matthew S. Falk, MD, of Orinda, Calif. shared a recent family photo.

2005
Joseph M. Hoxworth, MD, Scottsdale, Ariz., and Nicole C. Prall, MD, of Miami, Fla. were married on September 15, 2012 at the Four Seasons Resort Scottsdale at Troon North.

2009
David W. Carlson, MD, Carpinteria, Calif., former resident in Nuclear Medicine, is practicing at the Cancer Center of Santa Barbara and Santa Barbara Cottage Hospital. He sent a recent family photo and writes “We welcomed our son, Wyatt, this past June.”

2009
Amita Kamath, MD, of New York, N.Y., and husband Sanjay Pamnani announce the arrival of their “boy/girl” twins born on December 5, 2011.

2009
Michael D. Ringler, MD, Oronoco, Minn., and wife Jennifer announce the arrival of daughter Alexcia born January 20, 2012. Ringler is a radiologist in Musculoskeletal Radiology at the Mayo Clinic in Rochester, Minn.
2010
Peter Jun, MD, Menlo Park, Calif., received the department’s Outstanding Fellow/ Clinical Instructor Teaching Award, presented by the chief residents at the 2012 commencement. He recently accepted a position at Kaiser Permanente, Santa Clara, Calif.

Rainer Poley, MD, Austin, Tex., writes “Here is a picture of residency and interventional radiology fellowship alums VJ Bhagat, MD, (1999), Jeremy Durack, MD, (2007), and me at the Western Angiographic and Interventional Society Meeting in Maui, September 2012.”

2011

Jeffrey Hom, MD, Portland, Ore., writes that after his Stanford Body Imaging fellowship he “served three months as Clinical Instructor in the Body Imaging section at Stanford and then accepted a position as a Body Imaging Attending at the Veterans Affairs Medical Center, Portland, Oregon.”

Fabio Settecase, MD, MSc, FRCP, Toronto, Canada, and Shaadi Shams were married on July 7, 2012 in Taormina, Sicily. In August, he started as a staff neuroradiologist at Sunnybrook Health Sciences Centre in Toronto.

Vinil Shah, MD, Boston, Mass. sent a recent photo of a gathering of former residents in his Boston apartment. Shah is clinical assistant and chief fellow in neuroradiology at Massachusetts General Hospital doing his second year of neuroradiology fellowship. He also serves as a Member-in-Training on the ASNR Executive Board.
The dedication, vision, and leadership of former board President, Richard A. Sollitto, MD, who died in November 2011, will be greatly missed (see page 28). His efforts, first as a board member and over his eight years as president of the Margulis Society, were key to many successful projects. Sollitto’s leadership of the fundraising for Stone Library resulted in a renovated library with a greatly enhanced workspace for trainees. Over the years, he provided the vision for elegant and enjoyable Galas that brought together faculty, alumni, and trainees. The Society greatly appreciates the friends and family who donated in Richard’s memory this year. (See page 50.)

Kressel Returns to UCSF
Herbert Y. Kressel, MD, editor of the medical research journal Radiology, was the featured speaker at the biennial Margulis Society Alumnus Lecture on April 3, 2012. He spoke on “Challenges and Opportunities for Imaging Journals: Emerging from the Shadows.” He offered the audience a knowledgeable and unique perspective on peer-reviewed journals, including an exploration of the issues facing scientific journals today, such as online communication, peer review, conflicts of interest, and honorary authorship. During his tenure as editor of Radiology (a position he has held since 2008), Kressel has implemented shorter timeframes from submission to publication and developed the journal’s online presence.

Kressel is the Miriam H. Stoneman Professor of Radiology at the Harvard Medical School and radiologist-in-chief emeritus of the Department of Radiology at Beth Israel Hospital in Boston, Mass. He graduated from the diagnostic radiology residency at UCSF in 1976.

This biennial lecture recognizes a distinguished UCSF Radiology alumnus who has succeeded in life, academia, or the private sector.

Research Support Continues
Senior residents Thomas Hope, MD, and Jason Talbott, MD, PhD, shared the 2012 Margulis Society Research Award, presented at commencement for their outstanding research while in the diagnostic radiology program at UCSF.

We also supported trainee research with three $2,500 grants to:
- Matthew Bucknor, MD, for his project “Structural, Metabolic and Histological Effects of High Frequency Focused Ultrasound (HIFU) on Bone”
- Ricky Tong, MD, PhD, for his project “Thermal Responsiveness of Uterine Fibroids to MR-Guided High-Intensity Focused Ultrasound: Correlation With T2 Signal Intensity And Histopathological Findings”
- Anand Patel, MD, for his project “Intravenous Chemotherapy Filter: A Novel Device for High Dose Chemotherapy Delivery During Transarterial Chemoembolization”
Miriam Bredella, MD, spoke to the audience via Skype from her home in Boston, on her decision to focus on research in an academic setting. She is an associate professor of radiology at Harvard Medical School–Massachusetts General Hospital. Other panelists included Drs. Ron Arenson, David Avrin, and Soonmee Cha from UCSF and Drs. Christopher Schultz, Donna Hoghooghi, Camilla Lindan, and Christopher Sonne from private practice, with Erik Gaensler, MD, moderating.
The Margulis Society gratefully acknowledges the following individuals for their generous contributions. This list reflects gifts made between July 1, 2011 and June 30, 2012.

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Radiology Postgraduate Education 2013

2012 Highlights
Last year, we moved the Annual Review course from Nob Hill to the Grand Hyatt Union Square, a more convenient location for attendees. In 2013, the course will be held at the Westin San Francisco Market Street hotel on February 3–8. Offering a thorough review of all systems and modalities presented by our outstanding faculty, this weeklong, comprehensive review course continues to attract an increasing percentage of practicing radiologists.

The June 2012 international course, Quintessential Imaging in Québec, chaired by Cynthia T. Chin, MD, director of the Precision Spine and Peripheral Nerve Center, was very well received. The all-star faculty included Heidi C. Roberts, MD, FRCPC, former UCSF fellow who specializes in Thoracic imaging at the University of Toronto. The class was held at the Fairmont Le Château Frontenac in historic Québec City.

What to Look Forward to in 2013
We will return to two very popular destinations next year. The Fairmont Southampton Bermuda will be the site of our next international offering. Bermuda Shorts: Practical Tips for Covering Call will be co-chaired by Brett M. Elicker, MD, chief of Cardiovascular and Pulmonary imaging, and Christopher P. Hess, MD, PhD, chief of Neuroradiology at the San Francisco Veterans Affairs Medical Center. The course is designed to bridge the gap between the need for subspecialty expertise and the reality of covering general call. The dates are June 23–28, the perfect opportunity for a mini-reunion for our alumni. Get in touch with your former classmates now and make plans to join us in Bermuda.

We will return to Jackson Hole, Wyoming on August 12–16 for a General Review course co-chaired by Steven W. Hetts, MD, chief of Neuroradiology at San Francisco General Hospital and Karen Ordovás, MD, assistant professor of Radiology Postgraduate Education 2013

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in the Thoracic imaging section. Surrounded by the grandeur and natural beauty of the Grand Teton National Park, the course will again be held at the widely acclaimed Hotel Terra, an eco-friendly property located in the heart of Jackson Village.

In collaboration with the UC Office of the President, the UC DOSE (an undertaking to standardize and optimize CT doses at all five UC hospitals), and the Radiology Outcomes Research Library we are organizing our first virtual conference with broad educational content focused on CT radiation dose reduction. The conference, led by Rebecca Smith-Bindman, MD, will be broadcast live May 8–10, 2013.

Due to popular demand, we will continue our courses in Kona, Maui, and Scottsdale. The Women’s Imaging course will move to the Napa Valley, where a fun wine-tasting event will be on the agenda.

Mark Your 2014 Calendar
We want our alumni to be the first to know that our June 2014 international course will be held in Budapest, Hungary. Known as the “Pearl of the Danube” and the “Paris of Eastern Europe,” Budapest combines 2000-year-old Roman ruins with 400-year-old Turkish monuments. This exciting city offers unique tour options and is a short transfer flight from all major European cities, convenient for pre- or post-course trips to Vienna, Prague, or Paris. Mark your calendar now to save June 16–20, 2014 and watch for further details on our website.

Save When Attending UCSF Courses
Don’t forget to take advantage of your alumni discount and our “Frequent Attendance” program. UCSF Radiology alumni qualify for a savings of $50 on the full registration fee for all our courses; if you register by the early registration deadline, your combined savings will be $125. Become a “Frequent Attendee” and save even more by earning a free course registration when you attend just four courses within three consecutive years. Find more details online and be sure to bookmark our website, www.radiology.ucsf.edu/postgrad. We also would like to hear from you if you have suggestions for future course destinations.

Your former teachers, as well as our newer faculty members, look forward to having you, your fellow alumni, and your colleagues join us at a course or two in 2013.
2013 Radiology CME Calendar

January 6–11, 2013
Breast Imaging and Digital Mammography
The Fairmont Orchid – Kohala Coast, HI

January 13–18, 2013
Practical Body Imaging in Paradise
The Fairmont Orchid – Kohala Coast, HI

January 27–29, 2013
Cardiovascular and Pulmonary Imaging
Hyatt Indian Wells Resort & Spa – Indian Wells, CA

January 30–February 1, 2013
Abdominal and Pelvic Imaging
Hyatt Indian Wells Resort & Spa – Indian Wells, CA

February 3–8, 2013
UCSF Radiology Annual Review
Westin San Francisco Market Street – San Francisco, CA

February 10–15, 2013
Neuro and Musculoskeletal Imaging
The Fairmont Orchid – Kohala Coast, HI

March 3–8, 2013
Spring Training for Radiologists
Fairmont Scottsdale Princess – Scottsdale, AZ

March 7–9, 2013
Virtual Colonoscopy Workshop
UCSF China Basin Research Center – San Francisco, CA

March 22–24, 2013
Breast Imaging Update
San Francisco Marriott Union Square – San Francisco, CA

May 8–10, 2013
Radiation Safety and Computed Tomography: A Virtual Conference
Online course begins with live days on May 8–10

May 19–24, 2013
Practical Applications in Diagnostic Radiology
Tenaya Lodge at Yosemite National Park – Fish Camp, CA

June 6–8, 2013
Virtual Colonoscopy Workshop
UCSF China Basin Research Center – San Francisco, CA

June 23–28, 2013
Bermuda Shorts: Practical Tips for On-Call Coverage
The Fairmont Southampton – Southampton, Bermuda

August 12–16, 2013
Tutorials in the Tetons
Hotel Terra Resort – Jackson Village, WY

September 16–20, 2013
Interventional Radiology Review
UCSF Parnassus Campus – San Francisco, CA

September 19–21, 2013
Virtual Colonoscopy Workshop
UCSF China Basin Research Center – San Francisco, CA

September 29–October 4, 2013
Women’s Imaging in Wine Country
Meritage Resort at Napa – Napa, CA

October 21–25, 2013
UCSF Radiology Highlights
Marriott Union Square – San Francisco, CA

October 27–November 1, 2013
Diagnostic Radiology Seminars
The Grand Wailea Resort – Maui, HI

November 4–8, 2013
Breast Imaging and Digital Mammography
Rancho Las Palmas Resort & Spa – Rancho Mirage, CA

December 8–13, 2013
Imaging Warm-Up in the Caribbean
The Westin Resort St. John – St. John, US Virgin Islands

FOR FURTHER INFORMATION PLEASE CONTACT:
Radiology Postgraduate Education, UCSF School of Medicine
3333 California Street, Suite 375, San Francisco, CA 94143-0629
Tel: 415/476-5731 Fax: 415/476-9213 E-mail: cme@radiology.ucsf.edu Web: http://radiology.ucsf.edu/postgrad
Course dates and locations are subject to change without notice before publication of a final brochure.
Please visit our website for the most current information.
Surbeck Young Investigator Award Winners

Five talented scholars earned awards at the sixth annual Surbeck Investigators Awards presentation in 2012. They presented their work to an admiring audience in Genentech Hall, at an event moderated by Professor Sarah J. Nelson, PhD, director of the Surbeck Laboratory of Advanced Imaging and Richard Gowen, PhD, president of the INDNJC Foundation.

Hu and Park Share First Place
Simon Hu, PhD, was recognized for “13C-Pyruvate Imaging Reveals Alterations in Glycolysis that Precede c-Myc-Induced Tumor Formation and Regression.” This paper describes the use of hyperpolarized carbon-13 technology to examine the metabolic consequences of switching a human oncogene on and off. Hu’s findings demonstrate that the distinct metabolic profiles of a transgenic mouse liver cancer model were highly correlated with corresponding genetic profiles.

Ilwoo Park, PhD, focuses his research on developing imaging biomarkers for monitoring brain tumor response to therapy using hyperpolarized MR 13C metabolic imaging. His award-winning paper is titled “Evaluation of Heterogeneous Metabolic Profile in an Orthotopic Human Glioblastoma Xenograft Model using Compressed Sensing Hyperpolarized 3D 13C Magnetic Resonance Spectroscopic Imaging.” He is postdoctoral fellow in the Brain Imaging research group led by Sarah J. Nelson, PhD.

A native of South Korea, Park completed his undergraduate work at the University of California, Berkeley and earned his PhD in the UCSF/UCB Joint Graduate Program in Bioengineering.

A Solo in Second Place and a Tie for Third
Galen D. Reed earned second-place honors for “A Method for Simultaneous Echo Planar Imaging of Hyperpolarized 13C Pyruvate and 13C Lactate.”

He holds a BS in Physics from the University of California, Los Angeles, where he worked in the Particle Beam Physics Lab developing high-gradient particle accelerators and free-electron lasers. He is enrolled in the UCB/UCSF Joint Graduate Bioengineering Program, where he has contributed to creating magnetostatic-based data processing...
programs for the analysis of magnetic resonance spectroscopy data for prostate cancer.

Myriam M. Chaumeil, PhD, earned a share of third place with her paper, “Longitudinal Evaluation of MPIO-Labeled Stem Cell Biodistribution in Glioblastoma using High Resolution and Contrast Enhanced MR Imaging at 14.1 Tesla.” A postdoctoral scholar in the laboratory led by Sabrina Ronen, PhD, Chaumeil applies innovative magnetic resonance techniques, such as hyperpolarized carbon-13 and contrast-enhanced imaging, to characterize brain tumors and their response to treatments. She earned her PhD in Medical Physics from the University of Paris XI, where she developed new MR methods for the study of brain metabolism in normal conditions and in Huntington’s disease.

Sharing third place, Kayvan Keshari, PhD, is a postdoctoral scholar in the lab led by John Kurhanewicz, PhD. His work focuses on developing novel magnetic resonance probes and engineered platforms to characterize abnormal metabolism for translation to both clinical diagnosis and drug discovery. His award-winning paper is titled “Hyperpolarized 13C Dehydroascorbate as an Endogenous Redox Sensor for in Vivo Metabolic Imaging.” Keshari holds degrees in Biochemistry and Applied Mathematics from the University of California, Berkeley and a PhD in Bioengineering from the University of North Carolina.

The Margaret Hart Surbeck Laboratory of Advanced Imaging is dedicated to advancing imaging techniques for biological and medical applications. The Young Investigator Awards provide small grants for career development and are funded through the INDNJC Foundation honoring Margaret Hart Surbeck.
Tenderness is as important as technology when Iris Moeller, RT, works with patients in the Ambulatory Care Center. That approach to her work earned Moeller the 2011 Lanna Lee Award, given annually to the outstanding technologist in the Department of Radiology and Biomedical Imaging. “Iris participates in every aspect of the Ambulatory Clinic, from assisting at the front desk to helping her co-workers with X-ray studies, even assisting staff at the main hospital,” said Operations Director Kathy Knoerl.

Moeller earned a teaching credential in Germany, and then worked as an elementary school teacher. After coming to the United States, she was the principal of a German language school before training to become a radiologic technologist. In 2006, after completing the program at City College of San Francisco, she accepted a position at UCSF.

“I have always been fascinated by technology in the medical field. Some diseases and conditions that were difficult to diagnose just decades ago are now easily detectable with the help of medical imaging. This fact and my interest in working with people led me to pursue a career as a diagnostic technologist,” said Moeller. “As a technologist you never stop learning and teaching, therefore the step from the classroom to the hospital was an easy one for me to take.”

Over her years of service in Diagnostic Radiology Moeller has gained a keen understanding of what needs to be done to provide outstanding patient care. She has excellent patient care skills and problem-solving skills. Her positive attitude and energy exemplify the qualities that the Lanna Lee Award represents.

The Lanna Lee Award was established in memory of Lanna Lee, a senior radiology technologist who died on her way home from work in 1989 during the Loma Prieta earthquake. Lee was a role model for others, always working with a smile and delivering excellent care to her patients. Since her death, this award is given annually in her honor at the department's holiday party. Her family regularly attends the award celebration to share in the knowledge that her spirit lives on.
Two in Department are Awarded School of Medicine “Great People” Awards

Among all the great people who work in the Department of Radiology and Biomedical Imaging, the School of Medicine acknowledged Computing Resource Manager Pranathi Sundaram, and Event and Alumni Coordinator Katie Murphy, as “Great People” in 2012.

The Great People Award recognizes employees whose daily contributions highlight the great diversity of work done within the School of Medicine, whose commitment and values make their jobs a positive experience and the School of Medicine a great place to work.

Sundaram Advances APeX Training

When APeX, UCSF’s electronic health record, went live system wide in June 2012, the School of Medicine’s IT community was ready for it, thanks in large part to Pranathi Sundaram’s efforts. She raised the issue of the large number of IT support staff who would be expected to answer questions about and support APeX for campus faculty, then helped create and organize training sessions to prepare them for that role.

“Our department members are familiar with Pranathi for her leadership of our Desktop Support Group, but she is also considered a campus IT leader and played a major role in Operational Excellence,” said Cathy Garzio, administrative director. “Nearly every week, I rely on her expertise and consider Pranathi an invaluable resource.”

In her daily work, Sundaram balances customer needs and cost-efficiency. Her leadership skills come into play when handling difficult customer support issues and ensuring that her staff are regularly involved in projects that challenge their abilities and improve their career advancement opportunities.

Murphy Helps Create Community

From overseeing the editorial production of Images to coordinating events as diverse as grand rounds, the recent memorial service for Richard Sollitto, MD, and the Margulis Gala, Katie Murphy harnesses the power of communication to foster a sense of community among department faculty, staff, and alumni. She also has provided valuable input on the department’s social media communications, including our blog, Facebook, and Twitter presence. Murphy is one of the original members of the Dean's Communications Advisory Board in the School of Medicine, formed in 2007. “It’s a pleasure having Katie on the board; she is a great listener, and her input and feedback is always helpful, no matter what issues we discuss,” said Sarah Paris, director of Communications for the Dean of the School of Medicine.

In announcing the award, Garzio noted that Murphy’s contributions are in evidence all year long, “from organizing the annual Research Symposium and Images to staffing the Margulis Society Board and the monthly Forum for Advanced Imaging Research, to planning and executing the beautiful resident graduation each year, Katie is a perfect example of nearly every criterion used for this award.”

Great People Award

These awards are given quarterly to staff members who represent the wide array of duties and functions performed in the School of Medicine. They honor employees whose performance is characterized by one or more of the following attributes:

- Contributes to activities, programs, or events resulting in tangible added value.
- Serves as a role model for teamwork and customer service.
- Makes the School or Department a better place to work by demonstrating a positive, helpful attitude and by communicating and working cooperatively with others.
- Shows solid and consistent devotion to the job and work group.
- Inspires others to excel.
The Year in Pictures
Research Directions

ABDOMINAL IMAGING
Judy Yee, MD, Interim Chief

Research Directions:
- The promotion of evidence-based abdominal imaging, including systematic validation of commonly held opinions and assumptions
- Advanced modifications of MRI and CT techniques to optimize assessment of hepatic, biliary, and renal disease
- Combined MRI and MR spectroscopic imaging (MRSI) in localizing and staging prostate cancer
- High-intensity, focused ultrasound of uterine fibroids and prostate cancer
- Advanced hepatic imaging, including multi-detector CT, CT cholangiography, new hepatobiliary MR contrast agents, and MR cholangiopancreatography
- Radiological evaluation of diffuse liver disease, including cirrhosis, pseudocirrhosis, and nonalcoholic steatohepatitis
- Dynamic contrast-enhanced MRI and CT for assessment of solid organs and tumors in the abdomen and pelvis
- 3D rendering of CT and MR images, including projectional and volumetric applications, and CT colonography

Recent Key References:

BODY IMAGING RESEARCH INTEREST GROUP
John Kurhanewicz, PhD, Director

Research Directions:
- Developing an optimized and clinically feasible multiparametric MR protocol for prostate cancer and diseases of the kidney and liver
- Rigorous histopathological correlative studies for validation of MR biomarkers
- Developing ways to analyze multiparametric imaging data
- Developing clinical predictive nomograms that incorporate imaging variables
- Image-guided biopsy and therapy (HIFU, radiation)
- Identifying, validating, and implementing robust, quantitative, noninvasive magnetic-resonance-based metabolomic biomarkers of human disease and therapeutic response using ex vivo tissues, biofluids, and preclinical cell and murine models of human disease
- Developing targeted contrast agents for prostate cancer and other urogenital diseases
- Developing and implementing hyperpolarized 13C MRI in patients

Recent Key References:


*BRAIN RESEARCH INTEREST GROUP*

Srikantan Nagarajan, PhD, Co-Director
Sarah Nelson, PhD, Co-Director
Pratik Mukherjee, MD, PhD, Co-Director

**Research Directions:**

The scope of research conducted by the Brain RIG encompasses all aspects of brain-related inquiry.

Brain Tumors: Evaluating patients with brain tumors is a major focus for imaging research at UCSF and is an important application for the development of novel MR imaging and spectroscopy techniques. Key methodologies being applied to understand the underlying mechanisms of response to therapy and to validate *in vivo* parameters include the *ex vivo* analysis of image-guided tissue samples and the use of NMR spectroscopy in cell and pre-clinical model systems.

Brain–Behavior: Our goal is to understand the relationship between brain and behavior in health and disease, to integrate information from molecules to mind, and to translate neuroimaging advances to the clinic. Our specific mission is to map and analyze functional activation in the brain and functional network connectivity in the brain and to identify neurophysiological and neuroanatomical correlates of behavior in health and disease.

**Recent Key References:**


*BREAST CANCER RESEARCH INTEREST GROUP*

Nola Hylton, PhD, Co-Director
Bonnie N. Joe, MD, Co-Director

**Research Directions:**

The Breast RIG’s research aims are to advance imaging-based approaches for breast cancer diagnosis, leading to earlier detection, reduction of disease recurrence, and improved survival. Our major research areas include:

- MRI and spectroscopy to assess breast tumor response to neoadjuvant chemotherapy. UCSF is the lead institution for the national ACRIN 6657/I-SPY breast cancer clinical trial
testing MRI and molecular biomarkers for the prediction of treatment response and survival for women receiving neoadjuvant chemotherapy for locally advanced breast cancer

- Computer-aided tools for real-time measurement of MRI biomarkers for breast cancer
- MRI of ductal carcinoma in situ (DCIS) for staging and assessing response to hormonal treatment
- Quantitative mammographic breast density measurement for breast cancer risk assessment
- MRI-directed tissue biopsy for radiologic-pathologic correlation of imaging and molecular biomarkers
- MRI measurement of breast density and tissue composition

Recent Key References:


CARDIAC AND PULMONARY IMAGING

Brett M. Elicker, MD, Chief

Research Directions:

- Cardiac CT angiography (CTA)
  - CTA assessment of coronary allograft vasculopathy after heart transplantation
  - Use of cardiac CTA for pre-surgical clearance
  - Use of cardiac CTA for definitive emergency room evaluation of atypical chest pain
  - Evaluation of coronary atherosclerosis in patients with HIV infection

- Cardiac CT
  - Evaluation of pulmonary venous anatomy in atrial fibrillation
  - Characterization of myocardial ischemic injury by contrast-enhanced MRI and CT

- Chest CT/High-resolution CT
  - High-resolution CT diagnosis of lung disease
  - Clinical outcomes following negative CT for acute pulmonary embolism
  - Predictors of poor outcome in patients with acute PE diagnosed by helical CT

- Cardiac MRI
  - Use of novel cardiac MRI techniques and computational modeling for the quantitative assessment of ventricular performance in congenital heart disease
  - Use of multidimensional flow techniques for quantitative assessment of flow dynamics in congenital heart disease
  - MRI to assess cardiac function after repair of tetralogy of Fallot; correlation with clinical outcomes
  - MRI to assess cardiac function in the single ventricle patient after Fontan palliation; correlation with clinical outcomes
  - Endovascular therapy and hemodynamic assessment using MRI guidance
Recent Key References:


The CVRIG works closely with physician/scientists from other disciplines to develop and evaluate methods that include numerical modeling, physical *in vitro* models, and animal and human models of cardiovascular disease. The combination of these elements, together with a program for educating and training practitioners and scientists, will provide measurable benefits to patients.

In summary, our mission is to:

- Use state-of-the-art imaging to understand the etiology of multiple cardiovascular diseases
- Investigate the scientific basis for new imaging modalities and their applications
- Apply cardiovascular imaging modalities to evaluate the physiologic, pharmacologic, and molecular basis of disease
- Develop tools for early detection of cardiovascular diseases
- Assess the role of cardiac imaging in predicting cardiovascular outcomes to reduce overall and cardiac-related mortality.

Recent Key References:


CARDIOVASCULAR RESEARCH INTEREST GROUP

Karen Ordovás, MD, Co-Director

David Saloner, PhD, Co-Director

Research Directions

The Cardiovascular RIG aims to provide leadership to the radiology community by developing and implementing state-of-the-art methods for providing early diagnosis and improved outcomes for patients suffering from cardiovascular diseases.
IMAGE-GUIDED THERAPY (IGT) SPECIALIZED RESOURCE GROUP
Alastair J. Martin, PhD, Co-Director
Steven W. Hetts, MD, Co-Director
Mark W. Wilson, MD, Co-Director

Research Directions:
The IGT SRG aims to be a world leader in developing new and improved guidance for a wide array of surgical and interventional procedures. The administration of therapy is evolving and several common themes are emerging: (1) therapies must be delivered in an efficacious manner; (2) therapies must be administered in a minimally invasive fashion; (3) novel therapies must achieve demonstrable benefits over existing approaches; and (4) therapy delivery must be cost effective. Imaging is central to all these goals and the IGT SRG aims to bring together the clinical and technical expertise, within our department and in collaboration with external departments, institutions, and industrial partners, to develop delivery methods that achieve optimized therapeutic results.

Our key objectives are to:
- Provide improved guidance and evaluation of therapy
- Perform interventions and therapy delivery in a more minimally invasive fashion
- Develop image guidance for evolving medical therapies for which there may not now exist acceptable delivery mechanisms
- Develop pre-clinical devices in collaboration with industrial partners
- Conduct clinical trials that provide guidance to the medical community as to best practices in the therapeutic management of patients

Recent Key References:
INFORMATICS AND IMAGE PROCESSING/DISPLAY
SPECIAL RESOURCE GROUP
David E. Avrin, MD, PhD, Director

Research Directions:
Our group encompasses three areas of applied research and development:
- PACS, RIS, Workflow, and Integration: Software development related to acquiring, storing, and displaying digital images in clinical radiology and healthcare enterprise environments. Developing tools and integrating with other components of the electronic medical record are two specific focuses. Integrated tools for education and research, such as the UCSF Teaching File and the wet-read module are examples of successful projects. We are also one of the five institutions participating in the NIBIB-supported RSNA contract demonstration project on cross-enterprise, patient-controlled Image Sharing. We also oversee research PACS to support collaborative projects that involve imaging.
- Informatics: The intersection of the broad category of informatics with medical imaging. Examples include knowledge management, clinical decision support, standards such as RadLex and XDS-i, informatics for patient safety and quality, translational imaging, and datamining (including natural language processing).
- Image Processing: The broad range of post-acquisition image processing for MR and CT that is not specific to other RIGs. Examples include deformable anatomic modeling and fitting, statistical/probabilistic pattern matching, 3D visualization, and diffusion techniques.

Recent Key References:

INTERVENTIONAL RADIOLOGY
Robert K. Kerlan, Jr., MD, Chief

Research Directions:
- Joint project with Transplant Service for implantation of pancreatic islet cells
- Joint project with Transplant Service for downstaging hepatocellular carcinoma in potential transplant candidates
- Joint project with Abdominal Imaging in using MR diffusion imaging to differentiate flow abnormalities from hepatocellular carcinoma
- Joint project with Pediatric Surgery to create gastrojejunos-tomies and percutaneous jejunos-tomies using magnets
- Assessing the role of interventional radiology in managing complications related to the creation of ileal pouches following proctectomy
- Use of expandable metallic stents in the airways
- Joint project with Urology on RF ablation of small renal masses
- Assessing the safety of transdiaphragmatic drainages

Recent Key References:


MARGARET HART SURBECK LABORATORY OF ADVANCED IMAGING
Sarah J. Nelson, PhD, Director
Daniel B. Vigneron, PhD, Associate Director

Research Directions:
Development of high-field, 3 Tesla and 7 Tesla Magnetic Resonance techniques with improved sensitivity and specificity that more effectively address fundamental problems in biology and medicine, most notably:
- New algorithms for reconstructing spatial and temporal responses of biological systems and quantifying the resultant multi-dimensional and multi-spectral images
- New strategies for designing high-frequency RF coils and coil arrays that address electromagnetic problems and computational electromagnetism in in vivo MR at high fields using the FDTD and other finite element methods
- Applications of novel RF coils designs for in vivo MRI and spectroscopy
- Implementing parallel imaging strategies for anatomic, vascular, and spectroscopic imaging sequences in the musculoskeletal system, prostate, and brain
- Dynamic contrast-enhanced and perfusion-weighted imaging
- Phase and susceptibility-weighted imaging
- High-resolution angiography of neurovascular disease
- Developing faster, more reliable methods to acquire and process diffusion MRI
- Integrating studies on the human scanners with ex vivo analyses of tissue samples using high-resolution magic angle spinning NMR spectroscopy
- Improving and translating 3T MR spectroscopy sequences for prostate and brain in routine clinical use
- Applying and developing high-resolution MRI, MR spectroscopy, and MR diffusion imaging techniques at 7T
- Developing hyperpolarized C-13 agents and integrating novel data acquisition and analysis procedures
- Applying hyperpolarized C-13 metabolic imaging in cell systems and pre-clinical models to evaluate cancer and other diseases
- Developing new methods for hyperpolarized C-13 metabolic imaging in patients

Scientists in the Surbeck Lab continue to develop hands-on educational programs in high-field MR that are available to undergraduate and graduate students, medical students, and research fellows.

Recent Key References:


**MRI/MRS SPECIALIZED RESOURCE GROUP**

Daniel Vigneron, PhD, Director

**Research Directions:**

The MRI/MRI SRG works to advance MR imaging science to benefit the study of human disease. Studies include developing hardware and techniques to improve MR anatomic, diffusion, spectroscopic, hyperpolarized, perfusion, and high-field 3T and 7T imaging. We look at everything from developing new techniques and translating existing techniques, to improving the quality, speed, information-content, applicability of advanced MR methods. This graphic depicts our approach:

Basic development=>Translation=>Optimization=> Validation

Our key missions are to:

- Be world leaders in cutting-edge MR techniques for studying human disease
- Collaborate with RIGS to translate basic science MR techniques into application studies for testing and optimization
- Work with clinical MRI to optimize and evaluate new techniques and improve state-of-the-art methods
- Train and educate all personnel in advanced MR techniques

**Recent Key References:**


MUSCULOSKELETAL AND QUANTITATIVE IMAGING RESEARCH INTEREST GROUP
Sharmila Majumdar, PhD, Co-Director
Thomas M. Link, MD, PhD, Co-Director

Research Directions:
- High-field and high-resolution MRI for quantitative characterization of the morphology and function of the musculoskeletal system
- Identification of biomarkers for degeneration in bone, cartilage, and inter-vertebral disc, and diseases such as osteoporosis, spinal disorders, and osteoarthritis
- MR spectroscopy methods for characterizing muscle in diabetes, HIV, and other diseases
- Strategies for non-invasive monitoring of cartilage and disc regeneration
- Microscopic characterization of bone, cartilage, disc, and other tissues, using methodologies such as computed tomography, Fourier Transform Infra-red imaging, high-resolution NMR spectroscopy, and confocal laser microscopy
- Development of high-resolution, and quantitative computed tomography for characterizing bone geometry, micro-architecture, and density aimed at understanding aging, ethnic differences in the skeleton, osteoporosis, metal artifact reduction, and orthopedic implants

Recent Key References:


Research Directions:

Imaging of Osteoarthritis and Cartilage
- New morphological pulse sequences for cartilage imaging
- Biochemical, quantitative imaging of the cartilage matrix
- Analysis of the Osteoarthritis Initiative Cohort
- Osteoarthritis, obesity, and physical activity
- Cartilage imaging of marathoners and physically active individuals
- Assessing menisci and cartilage with matrix-sensitive MRI sequences

Bone Marrow Imaging
- Monitoring the progress of the treatment of Gaucher’s disease
- MRI of bone marrow changes in osteoarthritis
- Disuse osteopenia-related bone marrow changes

Osteoporosis Imaging
- Evaluating insufficiency fractures of the pelvis, CT vs. MRI
- Contrast-enhanced, multi-slice-spiral CT for assessing bone density and structure
- Diabetic bone disease: cortical porosity and increase in fracture risk

Imaging of the Shoulder
- Optimizing MRI for visualizing metal-on-metal surface replacements
- Evaluating fatty infiltration of muscles of the rotator cuff

Imaging of the Spine
- Imaging at 1.5T and 3T
- Clinical implications of lumbosacral segmentation abnormalities

MR Arthrography
- Evaluating the complications of MR arthrography

High-field MRI for musculoskeletal applications
- In vitro and in vivo comparison of cartilage imaging at 1.5T, 3T, and 7T
- Comparing 1.5T with 3T MRI for the evaluation of smaller joints
- Optimizing MR protocols for the knee at 3T and 7T

New MRI Techniques
- Use of CUBE and IDEAL sequences at 3T to image the knee
- Application of metal suppression MAVRIC sequences for assessment of total joint replacements
- In vitro and in vivo assessment of metal suppression sequences at 1.5 and 3T
- MR neurography

Recent Key References:


Patsch JM, Burghardt AJ, Yap SP, Baum T, Schwartz AV, Joseph GB, Link TM. Increased Cortical Porosity in Type-2 Diabetic Postmenopausal Women with Fragility Fractures. *J Bone Miner Res.* 2012 Sep 18. [Epub]

NEURODEGENERATIVE DISEASES RESEARCH INTEREST GROUP
Norbert Schuff, PhD, Co-Director
Michael W. Weiner, MD, Co-Director

Research Directions:
- Studying the causes and effects of neurodegenerative and psychiatric disorders using MRI as a surrogate marker
- Developing powerful, new brain MR techniques for early detection, improved diagnosis, and assessment of therapeutic interventions of neurodegenerative and psychiatric disorders
- Developing more powerful multimodal brain image processing and multivariate statistical imaging analysis techniques
- Highlights include:
  - Ultra-high resolution structural MRI
  - Diffusion spectrum imaging
  - Dynamic, arterial-spin-labeling imaging
  - Susceptibility-weighted imaging
  - Spectroscopic imaging and j-modulated spectroscopy
  - Bayesian image reconstruction
  - Multivariate image analysis methods
  - MRI protocols and processing pipelines for multi-center trials
  - Standards for imaging neurodegenerative diseases that can be transferred into clinical practice and multi-center clinical trials

Recent Key References:


NEURORADIOLOGY
William P. Dillon, MD, Chief

Research Directions:
- Neuropediatrics
  - Cause of cerebellar hypoplasia in prematurely born neonates and the effects of brain cooling on CNS injury in term neonates suffering hypoxic-ischemic injury
  - Embryogenesis of disorders of the midbrain and hindbrain
  - Normal and abnormal development of the cerebral cortex
  - Fetal MR neuroimaging: development and application of advanced MRI techniques to study normal and abnormal fetal brain development

- Traumatic Brain Injury
  - DTI and fiber tractography, fMRI, 3D MRSI, and deformation morphometry as imaging biomarkers for mild TBI to predict clinical outcomes in post-concussive syndrome, with correlation to neurocognitive testing and genomic analysis for TBI
  - Susceptibility genes such as ApoE
  - DTI and fiber tractography processing for a multi-center consortium study of mild TBI

- Cardiovascular Disease and Stroke
  - Use of 64-slice CT to detect cardiovascular disease and stroke and a functional mapping and scoring system for predicting the outcome of ischemic stroke
  - Use of perfusion and CTA imaging to detect ongoing hemorrhages in the brain of patients presenting with acute intracerebral hematoma
  - Use of permeability image mapping to detect stroke patients at risk of subsequent hemorrhage
Automated software for the outcome classification of patients with acute subarachnoid hemorrhage

Brain Tumors
- Use of permeability and perfusion imaging to guide operative biopsy
- Correlation of genetic markers and imaging markers from tissue obtained by image-guided biopsy

Head and Neck
- The utility of PET/CT in follow-up of patients with head and neck cancer
- The use of advanced imaging techniques in the detection of recurrent head and neck cancer

Spine
- CT-guided back pain management
- Use of image guidance to improve the accuracy of injections
- Utility of gadolinium MR myelography to detect CSF leaks
- MR neurography for peripheral nerve diagnosis

Neurodegenerative Diseases
- New imaging biomarkers for neurodegenerative diseases using 7T MRI
- 7T imaging of patients with intractable epilepsy
- Characterization of multimodal diffusion data using high-angular, resolution-diffusion imaging

Recent Key References:


NUCLEAR MEDICINE
Miguel Hernandez Pampoloni, MD, PhD, Chief,

Research Directions:
- Cardiac and vascular applications of clinical SPECT-CT, PET, and PET-CT
  - Applications of SPECT-CT for cardiac synchrony
  - Dementia imaging with SPECT-CT
  - Clinical PET and PET-CT studies of cancer, cardiovascular, and neurological diseases
  - Feasibility of PET and MRI to characterize myocardial metabolism and flow
  - Use of PET in monitoring therapy for breast and ovarian cancers
  - Conformal radiation treatment planning with PET-CT
  - Imaging structure and function in small animals with CT/SPECT
  - Molecular probe development for SPECT and PET

Key Recent References:


**PEDIATRIC/FETAL RESEARCH INTEREST GROUP**

A. James Barkovich, MD, Director

**Research Directions:**

- Developing new imaging techniques to assess normal and abnormal development, including MRSI and DTI
- Developing new technology for imaging fetuses and neonates and adapting state-of-the-art techniques for application in the developing fetus and infant
- Using imaging techniques to diagnose and study malformations of the brain
- Using imaging to assess injury in premature and term neonates
- Using imaging to assess new therapies for injured fetuses and neonates
- Using imaging to assess brain injury in neonates and infants with severe congenital heart disease

**Recent Key References:**


**PEDIATRIC RADIOLOGY**

John Mackenzie, MD, Chief

**Research Directions:**

The mission of the Pediatric Radiology section is to improve the health of children through advanced clinical imaging and research. The section studies pediatric disease through the lens of imaging and is focused on the development of new imaging technologies. Several ongoing basic science and clinical studies are underway with collaborations with MRI physics, pediatric oncology, pediatric gastroenterology, and pediatric surgery. Examples of research in the Pediatric Radiology section include:

- Novel contrast media for use in tumor detection and angiogenesis
- Hyperpolarized ¹³C MRSI for detection and treatment monitoring of inflammatory arthritis
- High-resolution MRI for characterization of congenital rectal floor abnormalities

**Recent Key References:**


RADIOLOGY OUTCOMES RESEARCH LABORATORY
Rebecca Smith-Bindman, Director

Research Directions:
The main objective of the Radiology Outcomes Research Laboratory (RORL) is to rigorously evaluate the benefits and harms of medical imaging that uses ionizing radiation to identify ways to improve patient safety.

- Demonstrate, through high-quality clinical and observational research, the impact of medical imaging on patient health, both beneficial and harmful
- Improve the performance of diagnostic imaging tests by conducting clinical trials that provide the evidence for appropriate and safe use
- Identify problematic trends in imaging, their potential impacts on patient safety and the healthcare system, and propose solutions
- Educate healthcare professionals on the current evidence-based techniques for maximizing image quality while simultaneously improving patient safety
- Engage healthcare providers in purposeful quality initiatives that have an immediate positive impact on the healthcare system and patient safety

The RORL is dedicated to providing rigorous evidence on the value of medical imaging that uses ionizing radiation to allow patients and their providers to engage in meaningful shared decision making around medical imaging. Our goal is to understand the impacts of diagnostic medical imaging and lessen the impacts of imaging when the costs outweigh the benefits.

Recent Key References:


SAN FRANCISCO GENERAL HOSPITAL
Mark W. Wilson, MD, Chief

Research Directions:
- Imaging evaluation of pulmonary embolism, particularly the ability of CT pulmonary angiography to predict outcomes in patients with pulmonary embolism
- Utility of imaging for diagnosis in AIDS patients
- Functional evaluation of pulmonary nodules in patients with suspected lung carcinoma, imaging of mesothelioma
- Imaging recurrent pyogenic cholecystitis and cholangitis
- Imaging trauma to the spine and spinal cord, chest, abdomen, and extremities
- Exploring MR sequences before and after gadolinium for focal hepatic lesions
- Neutral versus positive oral contrast in abdominal imaging
- Evaluating and maintaining atypical dialysis access grafts and fistulas
- Outcomes of transcatheter embolization for treatment of hemorrhagic complications of pregnancy termination
- Evaluating evolving techniques for transcatheter embolization for pelvic trauma
- Magnetic catheter manipulation in the MRI environment
- Proliferation of ultrasound in underdeveloped countries
- Global health care initiatives
- Internet applications in radiology
- Evaluating patterns of infection by atypical mycobacteria
- Evaluating HRCT features of interstitial lung disease in the setting of hypersensitivity pneumonitis
- Imaging and computer-aided assessment of traumatic brain injury
- Optimizing hepatic MRI and CT imaging parameters

Recent Key References:
Gean AD. Traumatic Brain Injury, CQ (Congressional Quarterly). Published by CQ Press (division of SAGE Publications), June 2012, Volume 22, Number 20, Pages 477-500.
ULTRASOUND
Ruth B. Goldstein, MD, Chief

Research Directions:
- Prenatal diagnosis of CNS anomalies with ultrasound and MRI
- Further investigation of clinical manifestations and treatment of twin transfusion syndrome
- Prospective, randomized trial of repair of fetal myelomenigocele
- Prospective, randomized trial for selective ablation of connecting vessels in twin transfusion syndrome

Recent Key References:


VETERANS AFFAIRS MEDICAL CENTER
DIAGNOSTIC RADIOLOGY
Judy Yee, MD, Chief

Research Directions:
- Dose reduction for screening and diagnostic CT colonography
- Stereoscopic 3D imaging clinical applications
- Spectral imaging, dual energy, and low kVp CT imaging
- CT and MR contrast timing and delivery in the abdomen and pelvis
- Eovist MR for the detection of hepatocellular carcinoma
- High-field MR imaging of the prostate
- Stroke prediction using intimal thickness on carotid ultrasound

Recent Key References:


**VETERANS AFFAIRS MEDICAL CENTER CENTER FOR IMAGING OF NEURODEGENERATIVE DISEASES**

Michael W. Weiner, MD, Director

**Research Directions:**

The Center for Imaging of Neurodegenerative Diseases (CIND) is a research center dedicated to studying the causes and effects of neurodegenerative and psychiatric disorders, using imaging instruments such as MRI and PET machines. We currently have eight full-time faculty performing studies in various fields, including imaging of Alzheimer’s disease, Parkinson’s disease, depression, posttraumatic stress-disorder, Gulf War illness, and substance abuse. We also work on the development of novel powerful methods for brain MR, including spiral imaging and new approaches for processing and multivariate statistical analysis of brain imaging.

Our faculty is involved in large international imaging trials, such as the Alzheimer’s Disease Neuroimaging Initiative (ADNI) and the Parkinson’s Progression Marker Initiative (PPMI). The Center is developing new strategies for the prevention of neurodegenerative diseases. One initiative aims to develop a registry of aging individuals living in the San Francisco Bay Area. The ultimate goal for this project is the prevention of Alzheimer’s and Parkinson’s disease.

In the area of MRI and image processing, we work with different techniques including the following:

- Ultra-high resolution structural MRI
- Diffusion spectrum imaging
- Dynamic, arterial-spin-labeling imaging
- Resting-state functional MRI
- Susceptibility-weighted imaging
- Spectroscopic imaging and j-modulated spectroscopy
- Bayesian image reconstruction
- Multivariate image analysis methods
Recent Key References:


Recent Key References:


VETERANS AFFAIRS MEDICAL CENTER
VASCULAR IMAGING RESEARCH CENTER

David Saloner, PhD, Director

Research Directions:

- Development of methods for visualization of complex flow in intracranial aneurysms
- Assessment of novel contrast agents in MR angiography
- Development of patient-specific models for review of endo-vascular therapies
- Analysis of plaque vulnerability using patient-specific, image based computational methods
- Development of 4-D MR velocimetry methods for determination in analyzing the impact of hemodynamics on vascular disease progression
WOMEN’S IMAGING
Bonnie N. Joe, MD, PhD, Chief

Research Directions:
- MRI, optical imaging, and X-ray mammography for breast cancer screening and surveillance, diagnosis and tissue characterization for risk assessment, cancer staging, and treatment response assessment
- New techniques in MRI-guided biopsy and imaging protocols
- Quantitative assessment of breast density and breast cancer risk models
- Digital breast tomosynthesis
- MRI/MRS for assessing tumor response to neo-adjuvant chemotherapy for patients with locally advanced breast cancer
- Biomarker development using advanced breast MR techniques

Recent Key References:


Grants and Fellowships

Grants

Elias H. Botvinick, MD
- Lantheus Medical Imaging; A Phase 3, Open-Label, Multi-center Study for the Assessment of Myocardial Perfusion using Positron Emission Tomography (PET) Imaging of Flurpiridaz F18 Injection in Patients with Suspected or Known Coronary Artery Disease (CAD), 1/18/12–3/31/14, $140,006.00

Linda Chao, PhD
- Department of Defense; Investigation of the Links Between PTSD and Dementia, 09/30/11–09/29/13, $151,232.00

Daniel L. Cooke, MD
- Aneurysm and AVM Foundation; The Endovascular biopsy: Evaluation of Technical Feasibility, 5/1/12–4/30/14, $12,500.00

Randall A. Hawkins, MD
- Children’s Hospital of Los Angeles; New Approaches to Neuroblastoma Therapy (NANT) Clinical Trials, 1/1/11–5/31/11, $9,000.00
Michael D. Hope, MD
- Radiological Society of North America; Comprehensive Hemodynamic Assessment of Valve-related Aortic Disease with Cardiac Magnetic Resonance, 7/1/12–6/30/13, $76,000.00

Nola M. Hylton, PhD
- American College of Radiology; MR Imaging Biomarkers for Assessment of Breast Cancer, 1/1/11–12/31/11, $10,000.00

Thomas F. Lang, PhD
- Wyle Corporate; Analysis of CT scan for NASA Bed Rest Study, 2/1/12–1/31/13, $15,000.00
- Universities Space Research Association; Bisphosphonates as a Countermeasure to Space Flight Induced Bone Loss, 10/1/11–9/30/12, $20,000.00

Xiaojuan Li, PhD
- Maine Medical Center; Interdisciplinary Study of Marrow Adiposity, Mineral Metabolism And Energy Balance, 9/30/11–6/30/12, $10,000.00

Jing Liu, PhD
- American Heart Association; 4D Cardiac MRI Development, $140,000.00, 07/01/2012–06/30/2014

John D. Mackenzie, MD
- NIH National Institute Arthritis, Musculoskeletal and Skin Diseases; Molecular Imaging for Detection and Treatment Monitoring of Arthritis, 7/1/12–6/30/13, $126,090.00

Sharmila Majumdar, PhD
- GE Healthcare; Improved Quantitative and Real Time MR Imaging, 10/1/11–10/31/13, $250,068.00

Dieter Meyerhoff, PhD
- NIH National Institute on Alcohol Abuse and Alcoholism; The Biological Basis of Alcohol-and Smoking-Induced Brain Injury, 09/01/12–08/31/17, $1,506,586.00

Sarah Nelson, PhD
- GlaxoSmithKline (GSK); Quantification of Hyperpolarized C-13 Metabolic Data, 12/7/11–12/30/14, $491,182.00
- NIH National Cancer Institute; Response to Therapy For Patients With Glioma Using Hyperpolarized C-13 Pyruvate, 7/23/12–6/30/13, $320,588.00

Viola Rieke, PhD
- GE Healthcare; Development of MR Techniques For MR Guided Focused Ultrasound (MRg-FUS) and Real Time Imaging, 1/1/12–12/31/13, $149,940.00
- Stanford University; MRI Methods for Guiding Focused Ultrasound in the Brain, 4/1/12–3/31/13, $28,776.00
- NIH National Heart, Lung and Blood Institute; MRI–Guided Cardiac Focused Ultrasound Ablation, 6/21/12–5/31/13, $249,000.00

Sabrina M. Ronen, PhD
- NIH National Cancer Institute; MR Imaging of Isocitrate Dehydrogenase (IDH) Mutational Status in Brain Tumors, 4/2/12–3/31/13, $201,623.00

Norbert Schuff, PhD
- Michael J. Fox Foundation for Parkinson’s Research; Diffusion Tensor Imaging Processing and Group Analysis, 9/9/10–9/8/11, $18,750.00

John A. Shepherd, PhD
- NIH National Cancer Institute; The Breast Radiology Evaluation and Study of Tissues [BREAST] Stamp Project, 8/25/11–8/24/12, $91,688.00
- NIH National Cancer Institute; Subregional Breast Density and Cancer Risk, 3/1/12–2/28/13, $200,014.00
- PHS Centers for Disease Control; Dual Energy X-Ray Absorptiometry (DXA) Scan Analysis, 1/1/12–12/31/12, $143,847.00

Rebecca Smith-Bindman, MD
- UC Center for Health Quality and Innovation Standardization and Optimization of Computed Tomography, 7/1/11–6/30/12, $250,000.00

Henry F. VanBrooklin, PhD
- iTi Health, Inc.; Developing a Plectin-1 Targeted Imaging Agent for the Detection of Pancreatic Cancer, 2/10/12–7/31/12, $70,792.00
- Cancer Targeted Technology, LLC; Probe Development for Prostate Cancer, 7/2/11–8/30/12, $119,379.00
- University of Montana; PET Imaging Agents – ALS Therapy, 4/1/12–6/30/12, $83,506.00

Michael Weiner, MD
- Alzheimer’s Association; ADNI 2 add-on project: Hippocampal Subfield Volumetry, 07/01/12–06/30/15, $454,545.00

David M. Wilson, MD, PhD
- NIH National Cancer Institute; Ascorbate-Based Biomarkers for Predicting Radiation Response in Prostate Cancer, 4/24/12–3/31/13, $500,056.00

Benjamin M. Yeh, MD
- NIH National Institute of Biomedical Imaging and Bioengineering; Complementary Injectable Tungsten Contrast for Dual Contrast Dual Energy CT, 4/1/12–3/31/13, $231,750.00

Fellowships

Kayvan R. Keshari, PhD
- NIH National Institute of Biomedical Imaging and Bioengineering; Human Tissue Culture Bioreactor and Hyperpolarized MR for Biomarker Discovery, 8/1/12–7/31/13, $87,686.00
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—Susan K. Stevens, MD, Fellowship ’90
California Pacific Medical Center, San Francisco, Calif.

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—Robert M. Barr, MD, Residency ’93, Fellowship ’95
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“When I reflect on the institutions that have made a real impact on me and my career, UCSF is close to the top. I have been in practice for 10 years and I am continually grateful for the incredible training that has led to such a full and meaningful career.”

—Lisa Kinoshita, MD, Residency ’02, Fellowship ’03
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