

Summer 2000

## Focal Spot, Summer 2000

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SUMMER 2000

VOLUME 31, NUMBER 2

# FOCAL SPOT

MALLINCKRODT INSTITUTE OF RADIOLOGY



*Celebrating Life*



## HERMAN IS TEACHER OF THE YEAR



Since 1985 diagnostic radiology senior residents annually have honored an MIR faculty member who has made outstanding contributions to resident education, by teaching not only with a traditional course study but through example as the residents observe and participate in the interpretation of clinical studies. At the annual residents' and fellows' farewell dinner in June, Thomas Herman, MD, associate professor of radiology, was named the 1999-2000 Teacher of the Year.

Herman's exceptional teaching abilities have earned other awards: As a faculty member at the University of Chicago's Department of Radiology, he received the 1981 Marc Tetalman Memorial Faculty Teaching Award. In 1984 he received the Lawrence L. Robbins Teaching Award while on staff at Massachusetts General Hospital.

Herman, a *summa cum laude* graduate of Dartmouth College, received a medical degree from Johns Hopkins University. He completed a diagnostic radiology residency at Mallinckrodt Institute and a pediatric radiology fellowship at Children's Hospital Medical Center in Boston. Herman joined the MIR faculty in 1989 and has served as director of education for pediatric radiology since 1994. He is a fellow of the American College of Radiology and is affiliated with numerous professional societies, including the American Academy of Pediatrics, the Radiology Society of North America, and the American Roentgen Ray Society.



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**ON THE COVER:** There are an estimated 10 million cancer survivors in the United States. In the 1930s, the survival rate for cancer patients was fewer than one in five; in the 1990s, the prognosis was four out of 10 patients. Since 1989, the Washington University Medical Center has sponsored a special event for cancer patients, their families, friends, and caregivers to celebrate life. Photographs by Mickey Wynn.



# SPOT NEWS

## Wilson Award presented

At Washington University's commencement exercises on May 19, Marianne Shih received the annual Hugh M. Wilson Award for Meritorious Work in Radiology. Now in its 32nd year, the award is presented to a fourth-year medical student for outstanding work in basic or clinical radiological sciences.

Shih received an honors grade in the initial radiology elective and subsequently chose an eight-week elective rotation in radiology research. Guided by mentor Scott Mirowitz, MD, MMM, professor of radiology, chief of radiology at Barnes-Jewish Hospital north, and codirector of body magnetic resonance imaging (MRI), Shih independently selected radiology case reports to be published and used as educational tools in the journal *St. Louis Metropolitan Medicine*. Shih's articles provided clinical physicians with important information about the appropriate use of imaging examinations. She also assisted Mirowitz in preparing a textbook chapter on shoulder MRI. In a more basic form of radiology research, Shih assisted with data analysis in phantom studies that quantitatively compared rapid MR imaging sequences.

## Investigators receive RSNA grants

The Radiological Society of North America (RSNA) Research and Education Foundation annually sponsors several programs to assist young investigators in the early stages of their careers in radiology research, education, and related scientific disciplines. The following MIR researchers received RSNA grants:

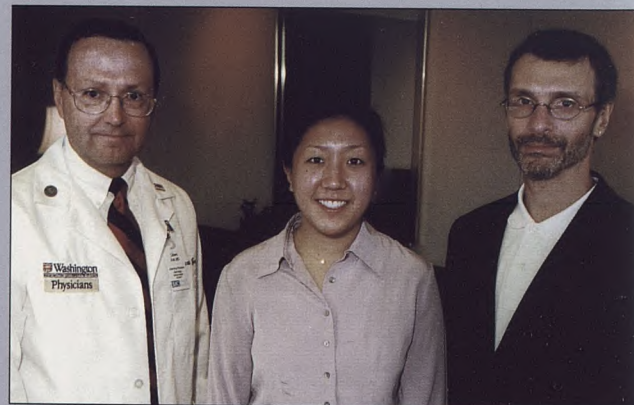
- Jacob Locke, MD, instructor in radiology, received a 2000 RSNA Fellow Award. The \$40,000 award will fund Locke's research on "The cellular and cytotoxic effect of heat shock, indomethacin and the regulation of AP-1." David Gius, MD, PhD, assistant professor of radiology, will serve as Locke's scientific advisor.
- Joshua Shimony, MD, PhD, clinical fellow in neuroradiology, received the 2000 RSNA/Siemens Medical Systems Fellow Award for his research on "Perfusion imaging of the spinal cord." The two-year award provides a stipend of \$35,000 annually for physicians nearing the completion of their radiology training. Shimony's mentor for the project is Thomas Conturo, MD, PhD, assistant professor of radiology and adjunct professor of physics.
- Imran Zoberi, MD, radiation oncology chief resident, under the mentorship of David Gius, MD, PhD, assistant professor of radiology, received the 2000 Roentgen Resident/Fellow

Award. The \$30,000 award will fund Zoberi's research on "The roles of cyclooxygenase -1 and -2 in the physiological response of cervical carcinoma cells to ionizing radiation."

- Dmitriy Yablonskiy, PhD, assistant professor of radiology and adjunct professor of physics, received the RSNA Scholars Award. The two-year award will provide a stipend of \$60,000 annually for Yablonskiy's project "Diffusion lung imaging with hyperpolarized <sup>3</sup>He gas: a new imaging modality to reveal the structure and functioning of alveoli in human lung." Coinvestigators are Washington University School of Medicine's Mark Conradi, PhD; Joel Cooper, MD; and Stephen Lefrak, MD; and MIR's David Gierada, MD, assistant professor of radiology. Brian Saam, PhD, from the University of Utah, will serve as consultant for the project.

## Molecular Imaging Center at MIR

David Piwnica-Worms, MD, PhD, professor of radiology and of molecular biology and pharmacology, as principal investigator, received a three-year, \$1.2 million planning grant from the National Cancer Center to establish the Washington University (WU) Molecular Imaging Center. Under the program, pilot research projects, core facilities, and education initiatives in molecular imaging will be expanded at WU Medical Center. Piwnica-Worms, as director of the Imaging Center, will oversee efforts to develop novel imaging compounds and to expand imaging techniques used in the diagnosis of cancer and the assessment of treatment effectiveness.



Lillian Wang, Washington University School of Medicine student, received the 2000 Canon USA/RSNA Medical Student Departmental Award. A monetary award of \$1,000 per month per student allows a radiology department to provide research opportunities to medical students. Wang is a *magna cum laude* and Phi Beta Kappa graduate of Princeton University. Also shown are (right) David Gius, MD, PhD, assistant professor of radiology and Wang's scientific advisor, and Gilbert Jost, MD, interim director of Mallinckrodt Institute.



The grant will provide funding for collaborative pilot projects that are designed to better understand cellular changes relevant to cancer, such as understanding how miscued interactions of a gene produce cancer or tracking immune cells in the body that are critical for destroying tumor cells. Seminars and lectures on molecular imaging tools used in disease studies are planned as well as a facility for producing and using molecular imaging agents.

Coinvestigators for the planning grant include Vijay Sharma, PhD, assistant professor of radiology; Kathryn Luker, PhD, research associate; and Gary Luker, MD, instructor in radiology, as well as collaborators and investigators from multiple WU departments.

## Jost elected SCAR Fellow

Gilbert Jost, MD, interim director of the Institute and chief of the Division of Diagnostic Radiology, was unanimously elected as an inaugural fellow of the Society for Computer Applications in Radiology (SCAR). The award ceremony was held in June in Philadelphia.

Chartered in 1988, with Jost as a charter member, SCAR develops and disseminates information for the application of computer technology in medical imaging. Membership is comprised of medical imaging scientists, engineers, and clinicians as well as manufacturers and marketers of computer-based medical imaging equipment.

## Reinus elected to honor society

William Reinus, MD, associate professor of radiology, recently joined the growing number of physicians who are earning degrees in business administration and management. "In today's managed-care environment, physicians need business training not only to be able to negotiate with vendors and contractors but also to learn to work smarter and more effectively," says Reinus.

A *magna cum laude* undergraduate of Amherst College and a member of the medical honor society Alpha Omega Alpha, Reinus received an MBA in May, 2000, from Washington University's John M. Olin School of Business. He also was elected to Beta Gamma Sigma, the Honor Society for Accredited Business Programs. Established in 1913, Beta Gamma Sigma was the first national honor society in business. Election to the society is the highest international recognition a business student can receive and is reserved for only the brightest and best of business leaders. Of the more than 300,000 students annually who receive undergraduate or graduate business degrees, fewer than 17,000 are elected to membership in Beta Gamma Sigma.

## Siegel named to Council of Experts

Barry Siegel, MD, professor of radiology and of medicine and director of the Division of Nuclear Medicine, was elected to a five-year term as chair of the Radiopharmaceuticals Expert Committee of the United States Pharmacopeia (USP) Council of Experts. He has participated in USP activities since 1975 when he was named to the Advisory Panel on Radiopharmaceuticals.

Of the more than 700 candidates, Siegel was one of 62 scientific experts elected to the Council of Experts (COE) during the Quinquennial Meeting of the USP Convention. He also was among 66 individuals honored by the USP Board of Trustees for meritorious contributions and "selfless sharing of expert knowledge and judgment."

Established in 1820, USP helps to ensure that consumers receive the highest quality of medicines. USP programs for reporting product problems and medication errors aid in promoting patient safety. COE committee members determine drug product quality standards that appear in the *United States Pharmacopeia*, the *National Formulary*, *USP Drug Information*, and other authorized publications as well as developing guidelines on the appropriate use of medicines and dietary supplements.

## Another honor for Raichle

As one of four recipients of the Robert J. and Claire Pasarow Foundation Award, Marcus Raichle, MD, professor of radiology and of neurology and neurobiology, was selected for his pioneering research in medical imaging. An award dinner held in June in Los Angeles also honored Raichle's longtime collaborator Michael Posner, PhD, of Cornell Medical College.

Founded in 1987, the Pasarow Foundation annually awards \$35,000 each to the nation's top medical and scientific investigators for their contributions to research on neuropsychiatric disorders, cancer, and cardiovascular disease. Raichle's research using positron emission tomography and functional magnetic resonance imaging was instrumental in developing functional maps of the brain's sensory and language information-processing areas.

Raichle is codirector of the Institute's Division of Radiological Sciences and a senior fellow with the University's McDonnell Center for Studies of Higher Brain Function. He is a member of the National Academy of Sciences—one of the highest honors accorded a United States scientist or engineer—as well as the Institute of Medicine and the American Academy of Arts and Sciences. He has received numerous awards for his research, including the 1999 Bristol-Myers Squibb Award for Distinguished Achievement in Neurosciences Research and the 1996 Charles A. Dana Award for Pioneering Achievement in Health.



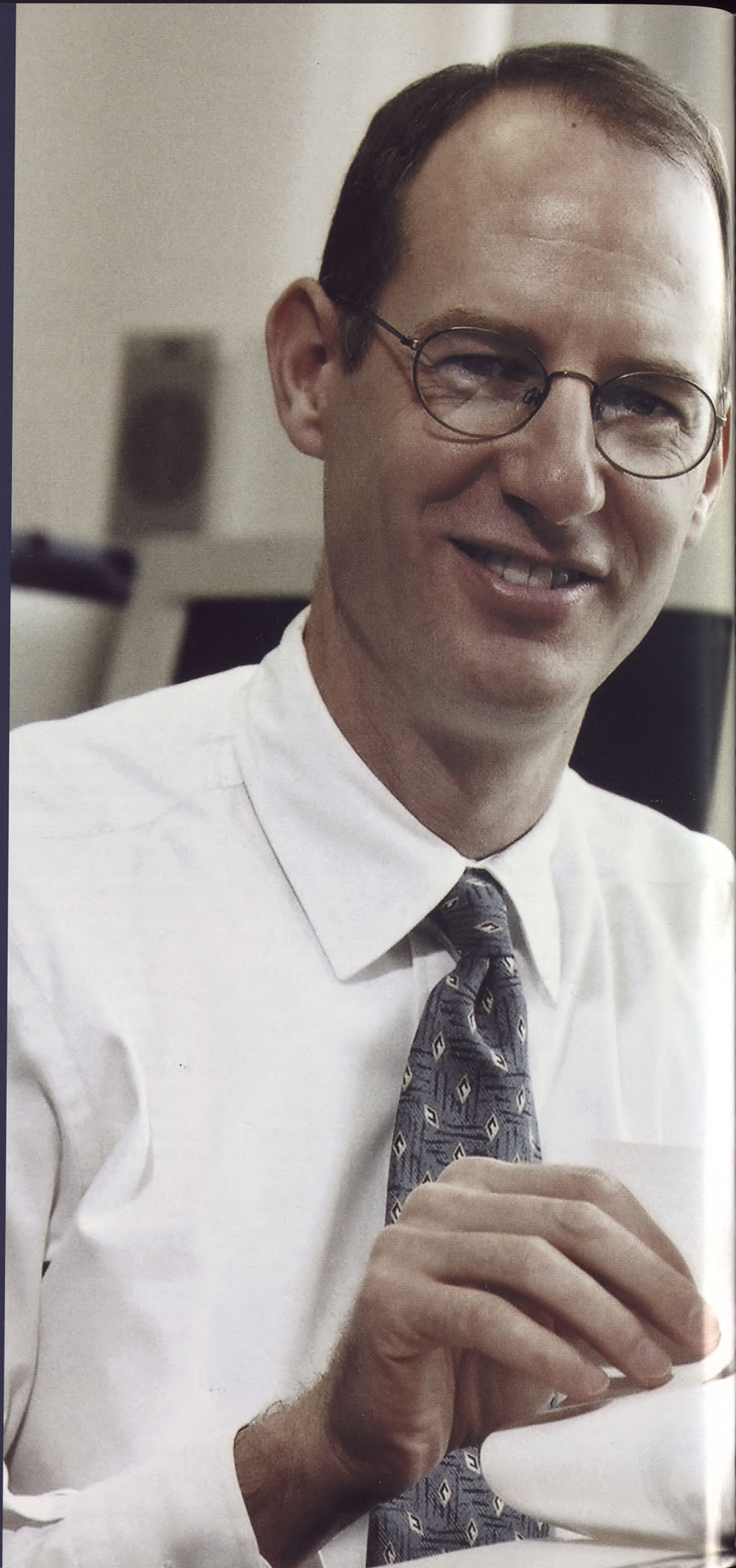
# Closing the gap

between clinical  
practice and basic  
science


*A visionary program provides radiology residents with important research experience.*

Combining the science of medicine and the clinical application of radiology, the Research Residency Program at Mallinckrodt Institute of Radiology (MIR) trains physicians who are comfortable in either field. With 90 percent of the Institute's diagnostic radiology residents choosing to work in clinical practice after their training is completed, the Research Residency Program is an important tool for fostering academic careers in radiology.

by Chris Wayland







**U**ltimately, for medicine to advance, academic medical science must be an integral part," says Jeffrey Brown, MD, director of the Research Residency Program and cochief of body magnetic resonance imaging (MRI). "In radiology, as in all of medical science, there is a communication gap between the clinicians and the basic scientists that is often hard to bridge," says Brown.

"It is very important that these two groups communicate with each other. The clinical radiologists need input from basic scientists for the field to move forward. And the basic scientists need input from the clinical radiologists to keep the research on track and to ensure that their investigations will actually benefit patients in the future," he says, adding that clinicians must communicate the limitations and challenges they face in providing an accurate diagnosis.

The Institute's program bridges that gap and facilitates communication between clinical and scientific applications. While other radiology departments in the country may informally offer residents the opportunity to conduct research, participants in the MIR program are guaranteed one year devoted to research as well as a paid salary, financial support for their research, and attendance at one scientific meeting per year.

**T**he program serves as a recruitment tool, offering residents an opportunity to use their specialized backgrounds and to pursue their research. An added enticement is the possibility of a faculty appointment at the Institute, one of the world's premier radiology facilities.

"Based on the quality of people we have been able to recruit and what they have accomplished since arriving here, our program has been incredibly successful so far," says Brown, who also holds the Washington University School of Medicine academic title of associate professor of radiology.

A diagnostic radiology residency is a four-year program; MIR's Research Residency Program encompasses five years. On average, two applicants per year are accepted. The majority of the program's graduates have taken an academic position, many with Washington University, says Brown. Some participants have joined the faculty at prestigious institutions, such as Harvard University, the National Institutes of Health, and Michigan State University.

Kyongtae Bae, MD, PhD, is a graduate of the program and has joined the Washington University faculty as an assistant professor of radiology. Choosing the research residency program meant he did not have to interrupt his research on quantitative and functional analysis of body imaging.

**B**eing in the research program provides flexibility and institutional support," Bae says, noting that there is "only a handful of top-level programs" across the country offering a research residency program in radiology.

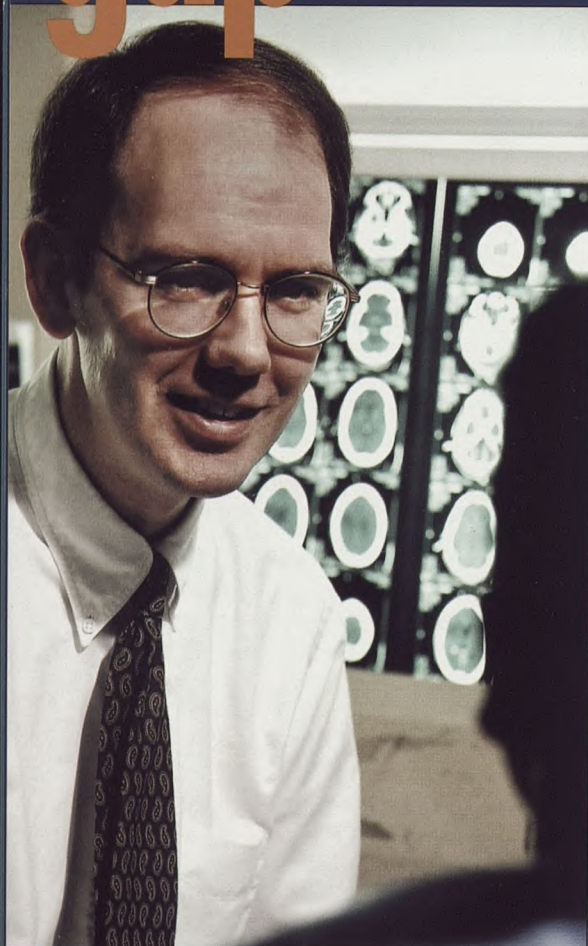
Brown estimates there were four or five such programs in the United States at one point, but some of those have been discontinued. Due to the Institute's success, more programs may be initiated. "We believe ours is the best program worldwide," Brown adds.

"The typical radiology residency is designed to train radiology clinicians. This program is dedicated to training academic radiologists," Bae says.

Another plus is that the program involves young researchers early in their careers. According to Bae, in order to compete for National Institutes of Health grants and other funding opportunities, a training program's focus must go beyond the clinical practice to an interdisciplinary understanding. "Radiology research frequently requires an integration of technology and medicine," says Bae. "It also will mediate and catalyze the growth of each field."



# Closing the gap



Above: Mark Oswood, MD, PhD

Right: James Duncan, MD, PhD

Bottom Right: Kyongtae Bae, MD, PhD

**M**ark Oswood, MD, PhD, has completed his residency and is beginning a two-year fellowship in the Institute's neuroradiology section. He chose MIR's program because of the abundance of research projects and the chance to work with a high-caliber academic faculty. Another important factor was the availability of top-of-the line equipment dedicated to research, including three MRI scanners to support Oswood's studies of the human brain and the magnetic resonance properties of blood. His current research involves using magnetic resonance spectroscopy to study alterations of the brain's chemical concentrations in different disease processes. Oswood credits Brown with giving the residents flexibility in choosing research time to best suit their individual needs.

The majority of the program participants came with doctoral degrees, in addition to medical degrees, and training in how to conduct research. Because of this previous training, the residents can continue their research, and they and the Institute benefit. "The people we recruit for the program must have some serious research experience," says Brown.

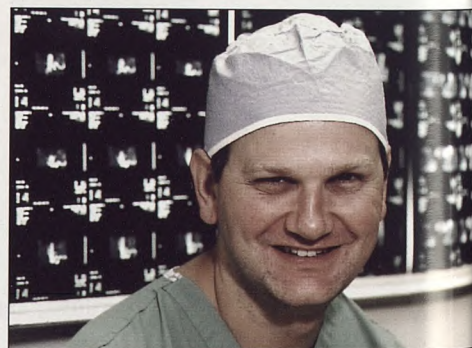
**"B**ringing in people with research skills helps to build our research program," says interventional radiologist James Duncan, assistant professor of radiology and of surgery. Duncan, who, in 1991, was the first research resident at Mallinckrodt Institute, came to Washington University with a medical degree and a doctorate in biochemistry. His research explored basic science contrast agents for MRI.

"We were trying to design cell- or tissue-specific agents to help delineate disease," he says, adding that the focus was on understanding on a cellular/molecular level what occurs to a variety of compounds once they reach the cells of interest.

Residents apply their skills to projects and take them to the next level in this research program, possibly staying on as staff when their residency training is completed. The research performed and experience gained can help participants in obtaining future funding. Since many disciplines compete for funding, the Institute's program is a way to duplicate the training experience that other specialties, such as cardiology, already have in place, according to Duncan.

**"I**t's not unusual for a cardiology fellow to do two or more years in the lab," Duncan says. "Radiology now has an extraordinary, similar research potential."

"We are lucky to have talented doctors apply to this program," Duncan says, adding that Mallinckrodt Institute administration was exceptionally far-sighted to have invested nine years ago in a recruitment program that will ultimately enhance research. **MIR**





# Celebrating LIFE

In 1989, Todd Wasserman, MD, professor of radiology, began to reflect on the radiation oncology patients that he was seeing, day in and day out. Although he knew some patients well because they faced recurring problems, he knew far less about those who did not need ongoing care.

"The ones who are successful often get lost in the crowd," he says. "So it occurred to me that we should make an effort to invite these long-term cancer survivors back to the medical center: to celebrate their lives, to allow them to interact with each other and their caregivers, and to enjoy a day when we all focus on *living*."

And so, the first Washington University Medical Center "Celebration of Life" officially began. Under Wasserman's guidance, it became a biennial event, growing significantly in numbers and scope each time. June 3, 2000, marked the sixth—and the largest yet—gathering, with nearly 600 former patients, their relatives and friends, and caregivers in attendance. These celebrants represented more than 9,100 patients, who have been disease-free for five or more years after therapy and were treated by Washington University School of Medicine physicians at Barnes-Jewish Hospital. In all, these cancer survivors have enjoyed some 45,000 years of continued life.

At this year's event, guest speakers included some cancer survivors who talked about their experiences during their illnesses and others who conveyed their thoughts musically. Mark Wrighton, PhD, chancellor of Washington University; Timothy Eberlein, MD, director of the Alvin J. Siteman Cancer Center; and William Peck, MD, dean and executive vice chancellor of the School of Medicine, also spoke, congratulating the audience on their successes and pledging the medical center's continued support for newer and better treatments. After lunch, guests toured the Cancer Information Center and the Gamma Knife facility and learned about advances in cancer-related treatment.

Celebration of Life guests enjoyed meeting fellow survivors and visiting with former caregivers. "Sometimes I feel as though I'm the only one who went through this disease," Rose Guetersloh, a nine-year leukemia survivor, wrote in her patient information update. "This day brought me back to reality. There are so many more who have also been there."

"How lucky I am to have such wonderful doctors and hospitals right in my own back yard!" added Mae Palans, a 12-year colon cancer survivor.

Wasserman returns the compliment, saying that staff members are thrilled to see patients doing so well and are eager to hear about the progress that each one has made. "Many of us will know someone who will be diagnosed with cancer," he says, "and it is encouraging to know that, in the future, treatment and outcome will be even better than it is today."



Clockwise: Cancer survivor Mae Palans; doctors Todd Wasserman, Timothy Eberlein, and William Peck; Chancellor Mark Wrighton.

BY CANDACE O'CONNOR







## Andrea Cohen

Andrea Cohen, the vibrant young woman who sang “Celebration” at this year’s event, has had much to celebrate in her own successful career. A dancer, singer, and actress who has performed in Broadway productions and in national touring companies, Andrea returned home this past July to appear at The Muny (St. Louis’ outdoor theatre) as the courtesan, Panacea, in the musical comedy, *A Funny Thing Happened on the Way to the Forum*.

But a not-so-funny thing happened to Cohen in 1976 when, as a St. Louis teenager, she was diagnosed with Hodgkin’s disease. Several surgeries and radiation therapy followed, but as soon as her treatments ended, she decided she was cured—and has never looked back. After she moved to New York, Andrea landed various roles, made three tours to Japan performing in musicals, sang on the *Today* show, and even appeared as Dorothy from the *Wizard of Oz* on a float in the annual Macy’s Thanksgiving Day parade.

Now she divides her time between performing in New York and helping out with her family’s business in St. Louis. Currently, she is the voice heard in a commercial for Shelter Insurance and in the “Smart City” computer display at the St. Louis Science Center. She has finished a promotional spot for MetroLink, St. Louis’ light-rail system, that will air in September.

And every chance she gets, Andrea carries a message of hope to newly diagnosed cancer patients because she credits the support of others, along with her own positive attitude, for accelerating her own cure.

“I looked at cancer as a war, with battles along the way. Some days I gained ground and other days I lost ground. But eventually, I won the war,” she says. “Now I tell people that laughter is so important, as well as asking for help—like ‘I’m really tired today, could you run to the store for me?’ or ‘I need to go to a funny movie; let’s go.’”

Andrea volunteered to sing at this year’s Celebration of Life because it was another chance to give something back, she says, and to express her zest for life. “For the doctors, it must be so fulfilling to look around and say, ‘Wow, look at all the people I’ve helped.’ For patients like me it is a chance to say, ‘Wow, look how many of us there are to thank you.’”



Above: Andrea Cohen, performing “Celebration.”

1) Amy Camie, harpist, and Michelle DeSabio, violinist.

2) Lois Pore is a nine-year breast cancer survivor.

3) Robert Mitchell is an eight-year cancer survivor.





## Eric Newman

This year's Celebration of Life was held in the Eric P. Newman Education Center on the Washington University Medical Center campus, a facility made possible in large part by a gift from the Newman family. Through its name, the Newman Center pays tribute to one of this year's Celebration of Life attendees: Eric P. Newman, who will soon celebrate his 90th birthday and is himself a 10-year survivor of colon cancer.

Newman's family has had a long association with medicine. His grandfather, Adolf Pfeiffer, was an 1874 graduate of the St. Louis College of Pharmacy; his father, Samuel Newman, MD, was a prominent surgeon affiliated with Jewish and St. Luke's hospitals.

Today, Newman is grateful to the dedicated doctors who insisted that he undergo the screening colonoscopy that detected his early-stage cancer and the doctors who then treated the cancer effectively. Now Newman is a strong advocate of thorough, routine screening, especially when there is a family history of disease. He also is a fan of Celebration of Life, which he calls an "inspirational event."

"Not only is it a tribute to the men and women who have devoted their lives to the research and medical service that has resulted in so many cures, but it is also a thank-you on behalf of those who have received this care," he says. "I was delighted to be there, because I am one of the lucky ones."

## Jackie Johnson

Jackie Johnson and her twin sister, Gwen, had "Doom" as their maiden name—and doom, admits Jackie, is a word that many people associate with cancer. Yet Jackie and Gwen have both faced breast cancer, and doom is still the farthest thing from their minds.

"Gwen is working full-time, and I am writing and helping my husband in his business," says Jackie, the mother of three sons, the youngest now 17. "We're both healthy, we're singing, we're doing everything."

She and Gwen often sing together in a group they call "Double Blessings," spreading a message of peace, joy and love through faith in God. They also reach out to other cancer patients, encouraging them to have hope.

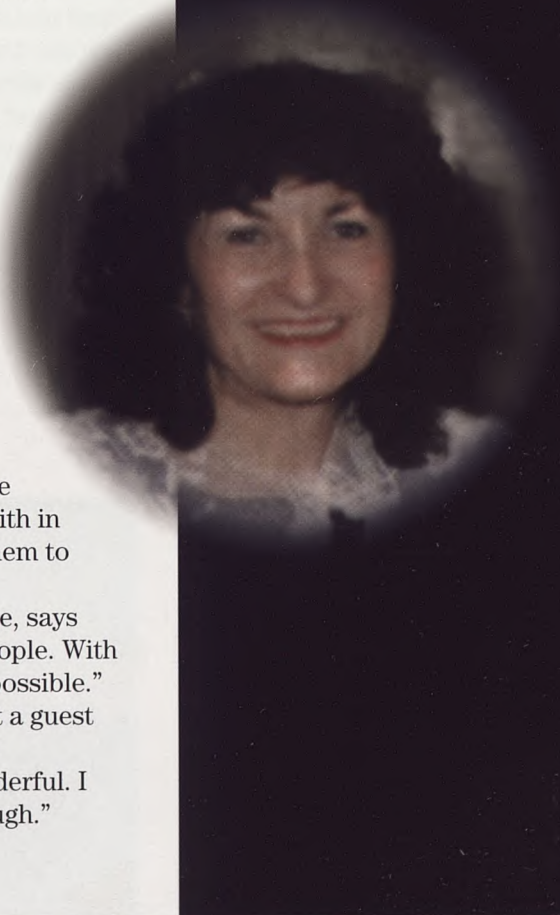
The Celebration of Life event spreads much the same message, says Jackie. "There are now proven treatments that can help many people. With these medical advances and a strong faith," she says, "healing is possible."

"I love the whole idea of celebrating life," she says. "I brought a guest with me that day who was just recovering from her illness, and it [the event] really encouraged her. The theme of hope is just wonderful. I have a lot of hope, too, and I think that's what helps you get through."



Above: Carlos Perez, MD, director of the Institute's Radiation Oncology Center, and Eric Newman (right).

Below: Jackie Johnson







## Jeanette Smith

One of the speakers at this year's event was Jeanette Smith, a 17-year survivor of Hodgkin's disease, who described how she made it through the first difficult months after her diagnosis in 1982.

"First you cry and then you pray," she told the crowd, "knowing that with God all things are possible. It has been rough many, many times but you have to keep looking for something to laugh about and what to be thankful for because, in all of our cases, it truly could have been worse."

During her recovery, she also did something else that she had always wanted to do but had never found the courage to try. Smith, a long-time deejay who had sung a little while spinning records, now started singing jazz and blues with a live band based in St. Louis' historic Soulard district.

"I went down there [to Soulard] and tried it [singing] and fell in love with it," she says. "Then, when I was in the hospital, I told the medical staff and they'd come to wherever I was performing. Some of the staff even brought their musical instruments and sat in with the band. We had a ball."

Speaking at Celebration of Life felt a lot like singing, says Smith, who is mostly retired from a daytime career in housekeeping. She was a little nervous until she said her first few words, then she calmed down. In fact, she enjoyed the experience, especially when fellow survivors came up afterwards and gave her a hug.

"I met one lady when we came in together," she says. "When I was going to my car, I saw her again. She said 'Thank you so much. I think I can make it now.'"



Above: Jeanette Smith

1) Jane Fisher has been disease-free for 13 years following treatment for breast cancer.

2) Howard Mumm has been disease-free for nine years.

3) Adele Oberman was treated for uterine cancer 15 years ago.





## Virgil and Lillian Petty

In November 1985, Lillian Petty learned that she had colon cancer; six months later, her husband, Virgil, was diagnosed with the same disease. It was a mysterious coincidence for a long-married couple with different dietary habits (“I’m meat-and-potatoes,” Lillian says, “and he’s vegetables-and-salad.”) and no family history of the disease.

Whatever the cause, they have approached their cures in the same way: “Doing a lot of praying is the first thing,” says Virgil. “Then staying active and keeping your mind off of the disease. If you’re really busy with something you’re interested in—I don’t care if it’s collecting stamps or fishing or whatever—the cancer won’t bother you so much.” “And being cheerful and helping others,” adds Lillian.

Both have followed this advice, even when Virgil was also diagnosed with bladder cancer in 1994 during a kidney-stone removal procedure. Now 78, Virgil retired last year from his second career: 11 years in a piano-tuning business. Before that, he had spent 30 years at McDonnell-Douglas as a production supervisor. Today, Virgil spends hours working in his lavish vegetable garden, while Lillian, 77, tends the flowerbeds, crochets, and maintains the house.

They have attended the last three Celebration of Life events. “I like to hear how other people have coped with their problems,” says Lillian. “I also like to hear the doctors talk about what’s coming up. It’s uplifting—we wouldn’t miss it for the world.” **VIIR**

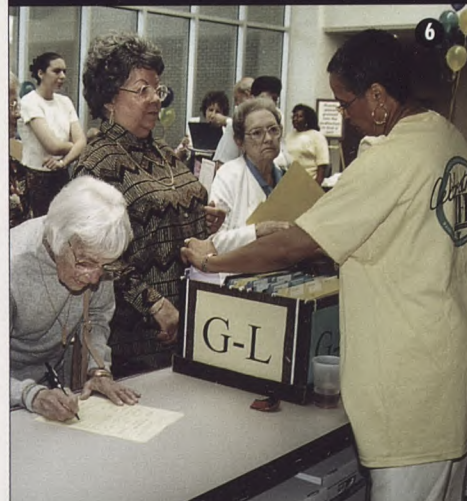


Above: Virgil and Lillian Petty

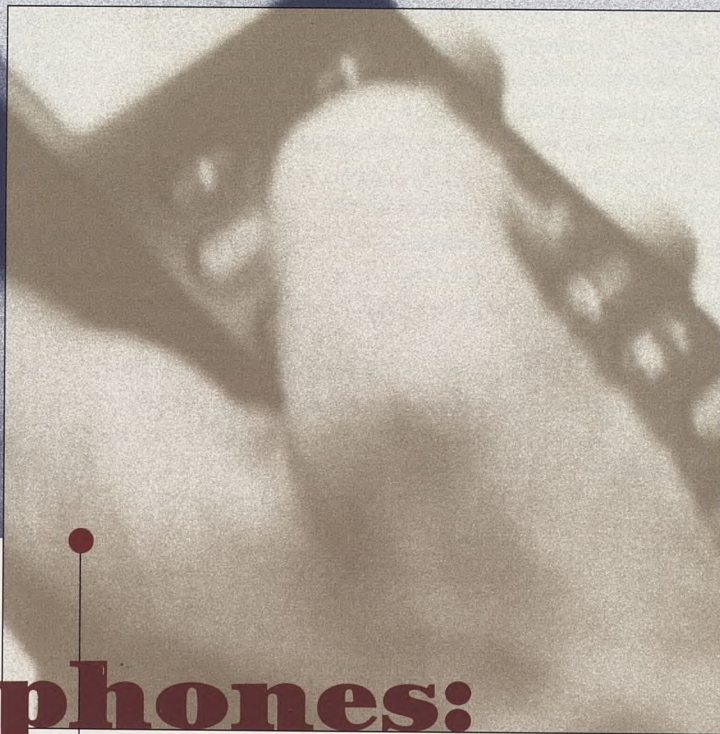
4) Dolores Kleyer is a 10-year cancer survivor.

5) Emily Yates is celebrating six disease-free years after treatment for breast cancer.

6) Dorothy (Dot) Gross helps out at the registration tables.








**mobile phones:**  
**are they a health hazard?**

by Brian Hook and Vicki Kunkler





**P**rompted by media coverage and subsequent inquiries from the public, the U.S. Food and Drug Administration is working with academic, government, and industry groups to provide information

about the possible connection between mobile phone use and brain cancer incidence. While a recent FDA consumer update states that “the available scientific evidence does not demonstrate any

adverse health effects associated with the use of mobile phones,” the debate continues about the safety of hand-held phones containing a built-in antenna that produces nonionizing radiation.



## mobile phones

At Mallinckrodt Institute of Radiology (MIR) at Washington University, Joseph Roti Roti, PhD, professor of radiology and associate director of the Radiation Oncology Center, is the lead investigator of a study funded by Motorola Inc. to test both digital and analog cellular phones. Roti Roti hopes to answer two questions: Is there any measurable DNA damage caused by these phones? And is there a measurable biological effect?

### universal concerns

Mobile phones emit low-level radiofrequency (RF) energy while they are in use. Controversy concerns the possible hazard resulting from the short distance between the hand-held mobile phone's antenna (the primary source of the

energy) and the user's head. Test results have shown that biological damage can result from the heat effects of high-level RF, but there is no clear evidence of adverse health effects from low-level RF.

According to Roti Roti, the analog cellular phone can be compared to a radio station. "Each radio station has its own frequency and broadcasts on that frequency," he says. "On a digital phone the message is broken up and sent on whatever frequency is available at the time. So it is shifting frequencies all of the time, at a random pulse, and producing different levels of RF. We have begun studying signals that give a periodically and evenly repeated pulse."

### the MIR study

The MIR researchers began their project in late 1994 and spent the first year and a half of the project building the radiation facilities and performing a baseline experimental design study. They began collecting data for the project in 1997.

Roti Roti says that the project faces four challenges; two are technology oriented while the other two are more human oriented. First, the research requires both positive and negative controls to define sensitivity. The second challenge is building and maintaining facilities that will aid in producing those controls.

"We needed good engineering support to design facilities that could be easily used and to build and maintain those facilities," says Roti Roti. Since the research facilities emit cellular phone radiation, "we also required special engineering steps to ensure no interference with outside phone communications during our experiments," he adds.

Researchers quickly discovered that a cell phone tower was located a block away from the research facilities, but, so far, there have been no problems with interference. Southwestern Bell provided the research team with a clear channel for the study, and extra shielding was added.





Another challenge, according to Roti Roti, is maintaining a core staff who is interested in the project. Irregular staffing and waning interest can result in discrepancies. "No scientist wants to measure three-hundred parameters and have negative results two hundred and ninety times," he says.

Roti Roti says the final obstacle is the conflicting outcomes produced by various studies, resulting in "true believers dismissing the negative results and non-believers challenging the positive results."

Despite the controversy and, as yet, unanswered questions, Roti Roti is proud of this research and its positive effects. "Our laboratory designed better research tools, introduced new scientific methods, and, through the publication of our work, established scientific credibility in this field," he says.

### questions and answers

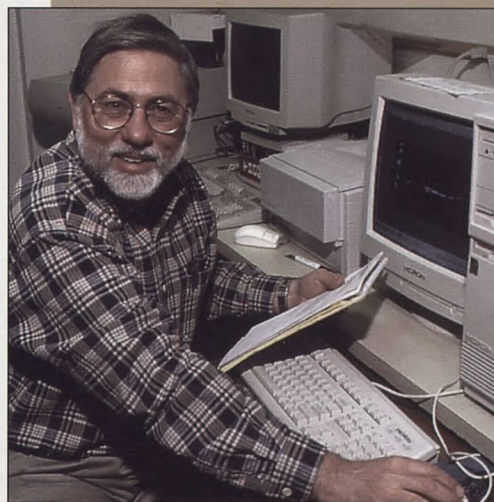
The tremendous amount of media interest makes it difficult for science to progress at its natural pace. "I can understand why the public wants an answer now, but these studies must be allowed to continue. At this point, there is not sufficient evidence to confirm that there are or are not health problems associated with mobile phone use," says Roti Roti. "Our MIR study is not complete, but currently we have no direct evidence of any carcinogenic effect from the low-level RF radiation emitted by cellular phones."

"If there are actual non-thermal effects that can be shown to have real biophysical mechanisms, then the more critical question is whether the carcinogenic testing protocol is appropriate for safety issues," he adds. "But we cannot decide that until we know if there is an effect and whether it could or could not be related to a carcinogenic mechanism."

When the MIR research is completed, Roti Roti says that "either the public will be alerted of a potential health hazard and then methods will be designed to circumvent the problem, or the public will be reassured that there is no carcinogenic potential." But if you ask him to predict his study's outcome, Roti Roti says his answer would only be a guess.

### bottom line

Should cellular phone users worry? Roti Roti says that currently he does not have any evidence suggesting that consumers should be concerned, emphasizing that he daily uses a digital cellular phone. He believes this research is important, and the results, no matter what they are, will benefit a large number of people. **MIR**



Joseph Roti Roti, PhD, is chief of the Institute's cancer biology section.



# FYI

*In this section, the names of personnel who are full-time faculty or staff or who have an appointment in the Department of Radiology are highlighted in boldface type.*

## PROMOTION

**Richard Slone, MD**, assistant professor of radiology, was promoted to associate professor of radiology, Division of Diagnostic Radiology.

## NEW FACULTY

**James Duncan, MD, PhD**, assistant professor of radiology and of surgery (general surgery), Division of Diagnostic Radiology.

**Debra Gusnard, MD**, assistant professor of radiology, Division of Radiological Sciences.

**Nobuo Horikoshi, PhD**, assistant professor of radiology, Radiation Oncology Center.

**Jason Lewis, PhD**, research instructor in radiology, Division of Radiological Sciences.

## FIRST-YEAR FELLOWS

**Kristin Carano, MD**, is a clinical fellow in vascular and interventional radiology. She received an undergraduate degree from Oberlin College and a medical degree from Cornell University Medical College. Carano completed four years of training in radiology at Mt. Sinai Hospital.

**Terry Falk, MD**, is a clinical fellow in abdominal radiology. He completed four years of training in diagnostic radiology at Mallinckrodt Institute of Radiology.

**Jon Fromke, MD**, is a clinical fellow in abdominal radiology. He completed four years of training in diagnostic radiology at Mallinckrodt Institute of Radiology.

**Amy Hara, MD**, is a clinical fellow in abdominal radiology. She received an undergraduate and a medical degree from the University of Missouri, Kansas City. Hara completed six years of training in radiology at the Mayo Clinic.

**Scott Haesemeyer, MD**, is a clinical fellow in vascular and interventional radiology. He received an undergraduate and a medical degree from the University of Kansas. Haesemeyer completed four years of training in radiology at the University of Tennessee, Memphis.

**Anthony Hein, MD**, is a clinical fellow in vascular and interventional radiology. He completed four years of training in diagnostic radiology at Mallinckrodt Institute of Radiology.

**Alvaro Huete, MD**, is a clinical fellow in chest radiology. He received an undergraduate and a medical degree from the University of Chile. Huete completed three years of training in radiology at Catholic University Hospital.

**Carol Hwang, MD**, is a clinical fellow in breast imaging. She received an undergraduate and a medical degree from Boston University. Hwang completed four years of training in radiology at the LAC-USC Medical Center.

**David Jeck, MD**, is a clinical fellow in neuroradiology. He completed four years of training in diagnostic radiology at Mallinckrodt Institute of Radiology.

**Margaret Lee, MD**, is a clinical fellow in breast imaging. She completed three years of training in diagnostic radiology at Mallinckrodt Institute of Radiology.

**Robert Leibold, MD**, is a clinical fellow in musculoskeletal radiology. He received an undergraduate degree from the University of Michigan and a medical degree from St. Louis University. Leibold completed three years of training in emergency medicine at Darnall Army Community Hospital and four years of training in radiology at St. Louis University.

**Jason Levy, MD**, is a clinical fellow in vascular and interventional radiology. He completed four years of training in diagnostic radiology at Mallinckrodt Institute of Radiology.

**Pratik Mukherjee, MD**, is a clinical fellow in neuroradiology. He completed four years of training in diagnostic radiology at Mallinckrodt Institute of Radiology.

**Randall Olsen, MD**, is a clinical fellow in vascular and interventional radiology. He received an undergraduate degree from Brigham Young University and a medical degree from the University of Alberta. Olsen completed four years of training in radiology at the University of British Columbia.

**Mark Oswood, MD, PhD**, is a clinical fellow in neuroradiology. He completed four years of training in diagnostic radiology at Mallinckrodt Institute of Radiology.

**Michael Ruff, MD**, is a clinical fellow in neuroradiology. He received an undergraduate degree from the University of Memphis and a medical degree from the University of Tennessee. Ruff completed four years of training in radiology at Tulane University.

**Elizabeth Spencer, MD**, is a clinical fellow in vascular and interventional radiology. She received an undergraduate degree from Dartmouth College and a medical degree from the University of Vermont College of Medicine. Spencer completed four years of training in radiology at Duke University.

**Sabrina Williams, MD**, is a clinical fellow in musculoskeletal radiology. She received an undergraduate degree from San Francisco State University and a medical degree from Stanford University. Williams completed three years of training in radiology at University of California, Los Angeles.

**Mary Wyers, MD**, is a clinical fellow in pediatric radiology. She completed four years of training in radiology at Mallinckrodt Institute of Radiology.



## FIRST-YEAR DIAGNOSTIC RADIOLOGY RESIDENTS

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**John Agles, MD**, assistant in radiology, received an undergraduate degree from Virginia Polytechnic Institute and a medical degree from Eastern Virginia Medical School. He completed a one-year internship at Riverside Regional Medical Center.

**Karen Bleich, MD**, assistant in radiology, received an undergraduate degree from Wesleyan University and a medical degree from Duke University. She completed a one-year internship at Mt. Sinai Hospital.

**Jeffrey Brent, MD**, assistant in radiology, received an undergraduate degree from Duke University and a medical degree from Washington University. He completed a one-year internship at St. Johns Mercy Medical Center.

**Jason Bronfman, MD**, assistant in radiology, received an undergraduate and a medical degree from the University of Pennsylvania. He completed a one-year internship at Mercy Hospital.

**Ronald Gerstle, MD**, assistant in radiology, received an undergraduate degree from Duke University and a medical degree from the University of North Carolina. He completed a one-year internship at Barnes-Jewish Hospital.

**Vladislav Gorengaut, MD**, assistant in radiology, received an undergraduate degree from Sangamon State University and a medical degree from the University of Illinois. He completed a one-year internship at South Illinois University Hospital.

**Richard Heller, MD**, assistant in radiology, received an undergraduate degree from Colgate University and a medical degree from Northwestern University.

**Ningmei Hu, MD**, assistant in radiology, received an undergraduate and a medical degree from the University of Kansas. She completed a one-year internship at the University of Kansas.

**Rolf Hultsch, MD**, assistant in radiology, received an undergraduate degree from the University of Virginia and a medical degree from Ohio State University. He completed a one-year internship at Riverside Methodist Hospital.

**Adolph Hutter, MD**, assistant in radiology, received an undergraduate and a medical degree from Georgetown University and a Masters of International Affairs degree from Columbia University. He completed a one-year internship at Washington Hospital Center.

**David Johnston, MD**, assistant in radiology, received an undergraduate degree from Brigham Young University and a medical degree from the University of Utah. He completed a one-year internship at Ball Memorial Hospital.

**Edward Lee, MD, MPH**, assistant in radiology, received an undergraduate and a medical degree from the University of Chicago and a Masters of Public Health degree from Harvard University. He completed a one-year internship at Beth Israel Deaconess Medical Center.

**Jennifer Lee, MD**, assistant in radiology, received an undergraduate degree from Harvard University and a medical degree from the University of Texas, Galveston. She completed a one-year internship at the University of Texas, Galveston.

**Amy Nordmann, MD**, assistant in radiology, received an undergraduate, a masters, and a medical degree from Washington University. She completed a one-year internship at St. Johns Mercy Medical Center.

**Vikram Patel, MD**, assistant in radiology, received an undergraduate degree from Ramnarain Ruia College and a medical degree from Topiwala National Medical College. He completed a one-year internship at Wychoff Heights Hospital.

**Lawrence Tang, MD**, assistant in radiology, received an undergraduate degree from Texas A&M and a medical degree from Washington University. He completed a one-year internship at Barnes-Jewish Hospital.

**Yuming Yin, MD**, assistant in radiology, received a medical degree from Beijing Medical University. He completed three years of training in radiology at Beijing JiShuiTan Hospital.

## FIRST-YEAR RADIATION ONCOLOGY RESIDENTS

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**Anurag Singh, MD**, assistant in radiology, received an undergraduate degree from Yale University and a medical degree from Washington University.

**Angel Blanco, MD**, assistant in radiology, received an undergraduate degree from Emory University and a medical degree from Baylor College of Medicine.

**Jon Anders, MD**, assistant in radiology, received undergraduate degrees from Crowder College and from the University of Missouri, Rolla. He received a medical degree from St. Louis University.

**Binh Tran, MD**, assistant in radiology, received an undergraduate degree from Dartmouth College and a medical degree from the University of Illinois, Chicago.



## FIRST-YEAR NUCLEAR MEDICINE TRAINEES

**Gabriele DeSimon, MBBCh**, assistant in radiology, completed two years of training in diagnostic radiology at Mallinckrodt Institute of Radiology.

**Yungao Ding, MD**, assistant in radiology, received an undergraduate degree from the University of Mississippi and a medical degree from Shanghai First Medical College. He completed four years of training in radiology at St. Elizabeth Hospital.

**Mark Fister, MD**, assistant in radiology, completed four years of training in diagnostic radiology at Mallinckrodt Institute of Radiology.

**Bartosz Rydzewski, MD, PhD**, assistant in radiology, completed four years of training in diagnostic radiology at Mallinckrodt Institute of Radiology.

**Stephen Schmitter, MD**, assistant in radiology, completed four years of training in diagnostic radiology at Mallinckrodt Institute of Radiology.

## GRANTS

**Kyongtae Bae, MD, PhD**, assistant professor of radiology, received the Young Investigator Award from the Society of Computed Body Tomography and Magnetic Resonance. The one-year award provides \$20,000 to fund research on "Assessing prostate cancer using diffusion-weighted MRI."

**Dione Farria, MD**, assistant professor of radiology, received a \$25,000 Alvin J. Siteman Cancer Center Research Development Award for the research project "Evaluating the effect of informed consent and procedure scheduling on breast biopsy patient outcomes."

**Tom Miller, MD, PhD**, professor of radiology, as principal investigator, received a one-year Alvin J. Siteman

Cancer Center Research Development Award for the project "PET imaging of prostate cancer with C-11 acetate: a pilot study."

Co-investigators are MIR's **Barry Siegel, MD**, professor of radiology and of medicine and director of the Division of Nuclear Medicine; **Farrokh Dehdashti, MD**, associate professor of radiology; **Michael Welch, PhD**, professor of radiology and of chemistry and codirector of the Division of Radiological Sciences; **Keith Fischer, MD**, associate professor of radiology; **Jeff Michalski, MD**, assistant professor of radiology; and **Nobuyuki Oyama, MD, PhD**, visiting instructor in radiology, as well as Gerald Andriole, MD, and Adam Kibel, MD, Division of Urologic Surgery, and Joel Picus, MD, Department of Medicine.

## Body MRI Syllabus Published

**Scott Mirowitz, MD, MMM**, professor of radiology, chief of radiology at Barnes-Jewish Hospital north, and codirector of body magnetic resonance imaging, was section chair of "Body MRI: Test and Syllabus," the 46th volume in the American College of Radiology's continuing series of Professional Self-Evaluation (PSE) tests and syllabi. This latest syllabus, the first one dedicated exclusively to body MRI, was published in July, 2000. It focuses not only on clinical interpretation but also on technical and important appropriateness issues. PSE is a unique program of continuing medical education for radiologists. **Marilyn Siegel, MD**, professor of radiology and of pediatrics, was a committee member and an associate editor of the text. **Barry Siegel, MD**, professor of radiology and of medicine and director of the Division of Nuclear Medicine, is editor-in-chief of the PSE series.

## APPOINTMENTS/ELECTIONS

**Jeff Michalski, MD**, assistant professor of radiology, was appointed as principle investigator of the Children's Oncology Group - Average Risk Medulloblastoma Group. He was appointed director of the Siteman Cancer Center's Clinical Trials Office.

**Tom Miller, MD, PhD**, professor of radiology, was appointed vice-chair of the Society of Nuclear Medicine's Scientific Program Committee.

**Scott Mirowitz, MD, MMM**, professor of radiology, chief of radiology at Barnes-Jewish Hospital north, and codirector of body magnetic reso-

nance imaging, was appointed to the Medical Management Committee of the Washington University School of Medicine Faculty Practice Plan.

**Joel Perlmutter, MD**, professor of neurology, of radiology, and of neurobiology, was appointed chair of the neuroimaging session at the American Academy of Neurology Meeting, San Diego, California, May 3. He was appointed vice-chair of the Board of Counselors for the National Institute of Neurological Disorders and Stroke at the National Institutes of Health.



**Joseph Roti Roti, PhD**, professor of radiology, associate director of the Radiation Oncology Center, and chief of cancer biology, was elected to a one-year term as president of the North American Hyperthermia Society and was appointed to a four-year term as chair of the International Congress for Hyperthermic Oncology's Symposium on Nuclear Effect of Hyperthermia in Cell Killing. He also was inducted into the Academy of Sciences and Arts at his alma mater, Michigan Technological University.

**William Straube, MS**, instructor in radiology, was elected to a one-year term as a physics/engineering advisor for the North American Hyperthermia Society.

**Pamela Woodard, MD**, assistant professor of radiology, was appointed as a member of the Cardiovascular Imaging and Intervention Committee, Scientific Council on Cardiovascular Radiology of the American Heart Association.

## HONORS/ AWARDS

**Louis Gilula, MD**, professor of radiology and of surgery, served as an examiner for the Oral Boards in Radiology, held in Louisville, Kentucky, May 14-17.

**Charles Hildebolt, DDS, PhD**, associate professor of radiology, was appointed to a two-year term on the Editorial Board of the journal *Calcified Tissue International*. He was appointed to the National Institutes of Health's Summer 2000 Dental Small Business Innovation Research/Small Business Technology Transfer Review Panel.

**Pamela Woodard, MD**, assistant professor of radiology, received a biographical citation in the 55th edition of *Marquis Who's Who in America*®, the single-source biographical reference that lists the highest achievers and contributors in the United States.

**Imran Zoberi, MD**, radiation oncology chief resident, under the mentorship of **David Gius, MD, PhD**, assistant professor of radiology, received a \$2,000 award from the American Radium Society for his research on "Thioredoxin nuclear translocation and interaction with redox factor -1 activates the AP -1 transcription factor in response to ionizing radiation."

## LECTURES/ PRESENTATIONS

**Carolyn Anderson, PhD**, associate professor of radiology, as invited lecturer, spoke on "Radiometal-labeled somatostatin analogs for targeted radiotherapy of cancer" at the Metals in Medicine Workshop, sponsored by the National Institute of General Medical Sciences, National Institutes of Health, Bethesda, Maryland, June 28 and 29.

**Jeffrey Bradley, MD**, instructor in radiology, spoke on "Radiation Therapy Oncology Group 3D conformal Radiation Therapy Workshop for Non-small Cell Lung Carcinoma;

enrollment and treatment planning for patients entered on trials 9311 and 1051" at the Three-dimensional Treatment Planning for Lung Carcinoma Workshop held at the Radiation Therapy Oncology Group semiannual meeting, Montreal, Canada, June 23-25.

**Jeffrey Brown, MD**, associate professor of radiology, director of clinical research, and codirector of magnetic resonance imaging, presented "MR imaging of the pancreas," "Abdominal MRA," "MR imaging of the female pelvis," "MR imaging of the kidneys," and "MR imaging of the liver" at the University of Pennsylvania Imaging Course, Jackson Hole, Wyoming, July 2-7.

## NIH Grant Awarded

**Vijay Sharma, PhD**, assistant professor of radiology, as principal investigator, received a \$1.56 million National Institutes of Health grant to study "Targeting chloroquine resistance with iron(III) complexes." Coinvestigators for the five-year grant are **David Piwnica-Worms, MD, PhD**, professor of radiology and of molecular biology and pharmacology and director of the Washington University Molecular Imaging Center; **Joseph Ocheskey**, research technician; and Daniel Goldberg, MD, professor of medicine.



LECTURES/  
PRESENTATIONS*Continued from page 19*

**Clifford Chao, MD**, assistant professor of radiology, presented "Role of radiation therapy in head and neck cancers" at New Modalities in the Treatment of Head and Neck Cancers, sponsored by the University Medical Center, Kansas City, Kansas, June 8 and 9. He spoke on "Brachytherapy for cervical cancer—the Mallinckrodt experience" and "Clinical application and results of IMRT in head and neck cancers—Mallinckrodt experience" at the Yonsei Radiation Oncology Symposium, sponsored by Yonsei University, Seoul, Korea, July 1.

**Thomas Conturo, MD, PhD**, assistant professor of radiology and adjunct professor of physics, as invited speaker, presented "Diffusion imaging in the brain: from protons to pathways" at the Member-initiated Symposium, Sixth International Conference on Functional Mapping of the Human Brain, San Antonio, Texas, June 16.

**Prabhat Goswami, PhD**, assistant professor of radiology, presented "A redox sensitive 3' untranslated region ribonucleoprotein complex associated with topoisomerase II (alpha) mRNA stability" at the 47th Annual Meeting of the Radiation Research Society, Albuquerque, New Mexico, April 29–May 3.

**William Harms, BS**, instructor in radiology, spoke on "QA for 3DCRT of the prostate accounting for setup and organ motion uncertainty" at the American Society of Therapeutic Radiology and Oncology Workshop Clinical Implementation of 3-DCRT for Prostate Cancer, Chicago, Illinois, June 16-18. He presented "Technical requirements for participation in 3DCRT lung trials" at the Radiation Therapy Oncology Group semiannual meeting, Montreal, Canada, June 23.

**Jay Heiken, MD**, professor of radiology, chief of abdominal radiology, and codirector of body computed tomography, spoke on "Computer modeling approach to contrast medium administration and scan timing for multislice CT" at the 5th International Somatom CT Scientific User Conference, Zurich, Switzerland, June 16 and 17. Heiken presented "Approach to contrast medium injection and scan timing for multidetector CT of the liver and pancreas" at the European Society of Gastrointestinal and Abdominal Radiology 11th Annual Meeting and Postgraduate Course, La Grande Motte, France, June 21-24.

**Fengming Kong, MD, PhD**, assistant in radiology, spoke on "Loss of heterozygosity of M6P/IGF2R gene locus leads to increased plasma TGFb1 LEVEL and contributes to poor outcome of radiotherapy in patients with non-small cell lung carcinoma" at the First International Conference on Translational Research, Lugan Switzerland, March 7.

**Jason Lewis, PhD**, research instructor in radiology, presented "Cu-diacetyl-bis(N4-methylthiosemicarbazone)(Cu-ATSM) an agent for imaging tumor hypoxia and radiotherapy" at the 46th Annual Meeting of the Radiation Research Society, Albuquerque, New Mexico, April 29–May 3.

**Kathryn Luker, PhD**, research associate, presented "Constitutive expression of senescence-associated $\beta$ -galactosidase in breast tumor cells resistant to multiple anticancer agents and ionizing radiation" at the American Association for Cancer Research Annual Meeting, San Francisco, California, April 1-5.

**Elizabeth McFarland, MD**, assistant professor of radiology, spoke on "Virtual colonoscopy" at the Plenary Session: Emerging Science and Technology at the American Society of Gastroenterology Postgraduate Course (Digestive Disease Week), San Diego, California, May 21.

**Jeff Michalski, MD**, assistant professor of radiology, spoke on "Image based 3D planning," "Conformal therapy/clinical implementation lung," and "Overview of RTOG conformal

therapy trials" at Conformal Therapy 2000, London, England, May 4 and 5. He presented "QA for 3D-CRT and IMRT" at the 5th International 3D-CRT Symposium, New York City, New York, June 1. Michalski spoke on "New perspectives on prostate disease: redefining patient care — focal therapies — radiation oncology" at New Perspectives on Prostate Disease: Redefining Patient Care, Charlotte, North Carolina, June 10.

**Scott Mirowitz, MD, MMM**, professor of radiology, chief of radiology at Barnes-Jewish Hospital north, and codirector of body magnetic resonance imaging, as chair of the Healthcare Management sessions, presented "Development of a health care management curriculum for post-graduate medical training" at the Academy of Business and Administrative Sciences International Conference, Prague, Czech Republic, July 10.

**Carlos Perez, MD**, professor of radiology and director of the Radiation Oncology Center, as visiting professor, spoke on "Radiation oncology in the multidisciplinary care of patients with cancer" at the Freeman Hospital, Joplin, Missouri, May 12. He presented "The cost benefit of 3-D CRT" at the 5th International Symposium on 3-D Conformal Radiation Therapy and Brachytherapy, New York City, New York, June 2. Perez spoke on "Costs and benefits of 3-D/IMRT" at the American Association of Medical Dosimetrists meeting, Portland, Oregon, June 29.



**Joel Perlmutter, MD**, professor of neurology, of radiology, and of neurobiology, presented "Welding related Parkinsonism: clinical features, treatment, and pathophysiology" at the American Academy of Neurology Meeting, San Diego, California, May 3. He spoke on "PD-related mood fluctuations: clinical features and co-morbidities" and "Mechanisms of deep brain stimulation" at the International Movement Disorders Meeting, Barcelona, Spain, June 17.

**David Piwnica-Worms, MD, PhD**, professor of radiology and of molecular biology and pharmacology, and director of the Washington University Molecular Imaging Center, presented "Constitutive expression of senescence-associated  $\beta$ -galactosidase in breast tumor cells resistant to multiple anticancer agents and ionizing radiation" at the American Association for Cancer Research Annual Meeting, San Francisco, California, April 1-5.

**James Purdy, PhD**, professor of radiology, associate director of the Radiation Oncology Center, and chief of radiation oncology physics, as invited faculty, presented "A review of ICRU reports 50 & 62;" "Image-based treatment planning: 2D, 3D,

virtual simulation and 3DCRT;" "Acceptance testing and quality assurance of treatment planning systems;" and "Radiotherapy in the new millennium: future directions" at the American Association of Physicists in Medicine International Scientific Exchange Course, Bangkok, Thailand, May 29-June 2. As cochair and invited faculty member, Purdy presented "Introduction to 3DCRT treatment planning: using the ICRU 50 methodology" at the American Society of Therapeutic Radiology and Oncology Workshop on Clinical Implementation of 3DCRT for Prostate Cancer, Chicago, Illinois, June 16-18.

**Marcus Raichle, MD**, professor of radiology and of neurology and neurobiology and codirector of the Division of Radiological Sciences, presented "Emerging images of mind" at the CNBC Lecture, University of Pittsburgh, Pennsylvania, May 3, and at the Annual BRI Neuroscience Day, University of Chicago, Illinois, May 12. He spoke on "Neuroimaging history and current state" at the Cold Spring Harbor Brain Development and Function 2000, Cold Spring Harbor, New York, July 11.

**Suart Sagel, MD**, professor of radiology, chief of chest radiology, and codirector of body computed tomography, spoke on "CT of the thorax: anatomic variants and pitfalls" and "CT angiography for pulmonary embolism" at the University of Cincinnati and the Cincinnati Radiological Society, Cincinnati, Ohio, June 12. Sagel presented "CT of asbestos-related thoracic disease," "CT of NM-vascular mediastinal masses," and "CT of the Pleura" at the Summer Practicum of Computed Body Tomography, Whistler, British Columbia, Canada, August 13-17.

**Marilyn Siegel, MD**, professor of radiology and of pediatrics, as visiting professor, presented "Imaging the acute pediatric abdomen," "CT and MRI of pediatric abdominal masses," and "CT of congenital lung anomalies" at the University of Michigan, Ann Arbor, May 25. She spoke on "Fast MR imaging of pediatric solid tumors" at the International Rhabdomyosarcoma Study Group Meeting, Vancouver, Canada, June 17.

## MIR Faculty Appointed to Boards

**Kyongtae Bae, MD, PhD**, assistant professor of radiology, was appointed to the Editorial Board of the *Korean Journal of Radiology*.

**Eric Klein, MS**, assistant professor of radiology, was elected to a two-year term on the Board of Directors for the American Association of Physicists in Medicine.

**Henry Royal, MD**, professor of radiology and associate director of the Division of Nuclear Medicine, was elected to a six-year term on the Board of Directors of the National Council of Radiation Protection and Measurement and was appointed chair of the Council's Budget and Finance Committee. He was elected to a three-year term on the Board of Directors for the Society of Nuclear Medicine.



# FYI

## LECTURES/ PRESENTATIONS

*Continued from page 21*

**Jason Sohn, PhD**, assistant professor of radiology, spoke on "High resolution evaluation of a commercial IMRT treatment planning system, beam penumbra model" at the First International Workshop on IMRT in Clinical Practice, Brussels, Belgium, June 9.

**Todd Wasserman, MD**, professor of radiology, presented "Protectors" at the Alza CME Grand Rounds, Boca Raton, Florida, May 4; at the Sylvester Cancer Center, Miami Florida, May 5; at the Alza Workshop, Chicago, Illinois, July 6 and 7; at Varian Associates, Inc., Palo Alto, California, July 17; at the University of California, San Francisco, Department of Radiation Oncology, July 18; and at the Alza Workshop, Fresno, California, July 19. He spoke on "Current and future directions in radioprotection" at the Treating and Protecting Your Cancer Patients Symposium, Bloomfield, Michigan, June 21.

**Michael Welch, PhD**, professor of radiology and of chemistry and codirector of the Division of Radiological Sciences, presented "PET radiopharmaceutical applications in diagnosis and therapy at Washington University, St. Louis" at the 2000 Symposium on Isotope and Radiation Applications, Taipei, Taiwan, May 18-20.

**Franz Wippold, MD**, associate professor of radiology, as visiting consultant, spoke on "Introductory anatomy of temporal bone," "Lesions of the optic nerve and intraconal space," and "An approach to cystic lesions of the neck" at the University of Nebraska, Omaha, May 9 and 10. He presented "Cystic lesions of the posterior fossa" and "Stalking a killer: perspectives in brain tumor imaging" at the MRI Contrast Update for the New Millennium, San Juan, Puerto Rico, June 10.

**Dmitriy Yablonskiy, PhD**, assistant professor of radiology and adjunct professor of physics, as invited speaker, presented "Functional-activation-induced changes in the brain temperature and their effect on brain metabolism and fMRI signal" at the Gordon Research Conference on In vivo Magnetic Resonance, Proctor Academy, Andover, New Hampshire, August 20-25.

**Imran Zoberi, MD**, radiation oncology chief resident, spoke on "Chemoradiation is the best treatment for stage IB1 carcinoma of the cervix" at the Gynecologic Oncology Group Meeting, Controversies in GYN Oncology Lecture Series, St. Louis, Missouri, July 27.

## SYMPOSIA

*In this section of FYI, only those faculty and staff who have MIR appointments are listed.*

### AMERICAN ROENTGEN RAY SOCIETY

*100th Annual Scientific Meeting  
Washington, DC  
May 7-12, 2000*

### INSTRUCTIONAL COURSE

**Jay Heiken, MD**, "Focal hepatic masses."

### CATEGORICAL COURSE

**William Reinus, MD, MBA**, "Hip and knee trauma."

**Stuart Sagel, MD**, "CT angiography for pulmonary embolism."

### SCIENTIFIC SESSION

**Juliet Fallah, MD**, "Childhood high-grade non-Hodgkin's lymphoma: CT patterns of mesenteric disease."

### SOCIETY OF NUCLEAR MEDICINE

*47th Annual Meeting  
St. Louis, Missouri  
June 3-7, 2000*

**Carolyn Anderson, PhD**, comoderator, Session 46: New Chemistry-Oncology: Imaging Gene Expression.

**Duffy Cutler, PhD**, invited lecturer, "3D PET in the torso: advantages and disadvantages."

**Farrokh Dehdashti, MD**, comoderator, Session 82: Oncology Track-Clinical: Breast Cancer II.

**Michael Lewis, PhD**, comoderator, Session 70: New Chemistry-Other: New Developments in Radiopharmaceutical Chemistry.

**Tom Miller, MD, PhD**, moderator, Session 10: Computer and Instrumentation, Young Investigators Symposium.

**David Piwnica-Worms, MD, PhD**, moderator, Session 19: Oncology-Basic: Tumor Angiogenesis.

**Jerold Wallis, MD**, vice chairman-Instrumentation and Data Analysis Track: Data Analysis and Management, Image Generation, Instrumentation; comoderator, Session 10: Computer and Instrumentation, Young Investigators Symposium.

The poster "Can ALARA and PET co-exist?" was awarded second place in the Technologist Section Poster Session. MIR's **Mickey Clarke, CNMT, BA**; **John Eichling, PhD**; **William Margenau**, cyclotron supervisor; and **Sally Schwarz, RPh, MS**, coauthored the poster with Barnes-Jewish Hospital nuclear medicine technologists DeLynn Silvestros, Renee Burney, and David Perry.



#### INVITED LECTURE

**Henry Royal, MD**, "Spiral CT vs VQ imaging in the diagnosis of pulmonary embolism."

#### SCIENTIFIC SESSIONS

**Clifford Chao, MD; Walter Bosch, DSc; Sasa Mutic, MS; Duffy Cutler, PhD; Jason Lewis, PhD; Mark Mintun, MD; Farrokh Dehdashti, MD; Michael Welch, PhD**, "An approach to hypoxic PET guided conformal radiation therapy."

**Farrokh Dehdashti, MD; Mark Mintun, MD; Jason Lewis, PhD; Michael Welch, PhD**, "Evaluation of tumor hypoxia with Cu-60 ATSM and PET."

**Pilar Herrero, MS; Nathaniel Potts**, data analyst; **Victor Davila-Roman, MD; Robert Gropler, MD**, "Additive effects of aging and hypertensive left ventricular hypertrophy on myocardial fatty acid utilization in humans."

**Jason Lewis, PhD; Michael Welch, PhD**, "<sup>64</sup>Cu-ATSM as a radiotherapeutic agent: extended survival in GW39 tumor-bearing hamsters."

**Michael Lewis, PhD; David Reichert, PhD; Richard Laforest, PhD; Terry Sharp**, technical supervisor; **Linda Willey**, PET research imaging technologist; **Zhiyun Yang**, visiting research assistant; **Michael Welch, PhD**, "Production of <sup>66</sup>Ga for tumor imaging using PET and an athymic mouse model."

**Michael Lewis, PhD; Mu Wang, MS; Lynne Jones, BA; Michael Welch, PhD; Carolyn Anderson, PhD**, "Radiotherapy and toxicity of <sup>64</sup>Cu agents for one- and three-step radioimmunotherapy."

**Tom Miller, MD, PhD**, "Quantification of tumor size and uptake by FDG-PET."

**Mark Mintun, MD; Kevin Berger, MD; Farrokh Dehdashti, MD; Jason Lewis, PhD; Clifford Chao, MD; Michael Welch, PhD**, "Kinetic analysis of the novel hypoxic imaging agent [<sup>60</sup>Cu]ATSM in human neoplasms."

**William Powers, MD; Carmen Dence, MS; Tom Videen, PhD**, "Effect of correction labeled arterial metabolites on PET cerebral metabolism measurements with <sup>11</sup>C-D-glucose during hyperinsulinemic clamp."

**William Powers, MD; Tom Videen, PhD**, "Effect of pharmacologic blood pressure reduction on CBF in patients with acute intracerebral hemorrhage."

**William Powers, MD; Thomas Videen, PhD; Robert Grubb, MD**, "Effect of hyperventilation on regional cerebral oxygen metabolism following severe traumatic brain injury."

**Vijay Sharma, PhD; Julie Dahlheimer**, senior medical research technologist; **Christina Pica**, junior medical/clinical research technician; **David Piwnicka-Worms, MD, PhD**, "Novel gallium (III) complexes as potential PET imaging agents for probing MDR1 P-glycoprotein transport activity: pharmacokinetic analysis."

**Frank Wuest, PhD; Carmen Dence, MS; Timothy McCarthy, PhD; Michael Welch, PhD**, "A new approach for the synthesis of <sup>11</sup>C-labeled fatty acids."

**Melinda Wuest, PhD; Jason Lewis, PhD; Michael Welch, PhD; Carolyn Anderson, PhD**, "Synthesis and in vitro evaluation of <sup>64</sup>Cu-CY-CLEN-N, N', N''-tetrapropionitrile."

#### POSTER SESSIONS

**Richard Laforest, PhD; Jason Lewis, PhD; Michael Lewis, PhD; Margaret Morris**, lab technician; **Mu Wang, MS; Carolyn Anderson, PhD**, "Dosimetry comparisons of <sup>90</sup>Y- and <sup>64</sup>Cu-labelled somatostatin peptides in tumor bearing animals."

**Jason Lewis, PhD; Deborah McCarthy, PhD; Michael Welch, PhD**, "*Ex vivo* Cu-PTSM labeling of cells as a method to image *in vivo* cell trafficking with PET."

**Michael Lewis, PhD; Richard Laforest, PhD; Duffy Cutler, PhD; Carolyn Anderson, PhD**, "PET dosimetry of <sup>64</sup>Cu in a nonhuman primate: pretargeted versus conventional radioimmunotherapy."

**Eric Hostetler, PhD; Timothy McCarthy, PhD; Jason Lewis, PhD; Michael Welch, PhD**, "Synthesis and in vitro evaluation of a new <sup>18</sup>F labelled potential diagnostic imaging agent for hypoxic tissue."

**Terry Sharp**, technical supervisor; **Jason Lewis, PhD; Pilar Herrero, MS; John Engelbach**, medical research technician; **Robert Gropler, MD; Michael Welch, PhD**, "Quantification of Cu-ATSM kinetics by compartmental modeling in normal, ischemic and necrotic myocardial."

#### CHICAGO 2000 WORLD CONGRESS ON MEDICAL PHYSICS AND BIOMEDICAL ENGINEERING

*Chicago, Illinois  
July 23-28, 2000*

**Joseph Deasy, PhD**, cochair, Monte Carlo 1.

**Robert Drzymala, PhD**, cochair, Stereotactic/Gamma Knife 1.

**Eric Klein, MS**, chair, Radiation Therapy Physics Track, Scientific Program Committee; cochair, QA of New Technologies/Hadrontherapy.

**Daniel Low, PhD**, cochair, IMRT Delivery 1.



## SYMPOSIA

*Continued from page 23*

**Eduardo Moros, PhD**, cochair, Emerging Thermal Therapy Technologies; cochair, Advances in Thermotherapy Bioengineering.

**Sasa Mutic, MS**, cochair, Quality Assurance of New Technologies 1.

**Jason Sohn, PhD**, cochair, IMRT Delivery 2.

**William Straube, MS**, cochair, Advances in Cancer Hyperthermia Technologies.

**Jeffrey Williamson, PhD**, cochair, Brachytherapy 1.

### REFRESHER COURSE

**Daniel Low, PhD**, "Serial tomography."

### SCIENTIFIC SESSIONS

**Duffy Cutler, PhD**, "Stability in pharmacokinetic applications of deconvolution."

**Joseph Deasy, PhD**, "Denoising of Monte Carlo dose distributions," "Prioritized optimization for radiotherapy treatment planning."

**Joseph Deasy, PhD; Clifford Chao, MD; Daniel Low, PhD**, "Bioeffect modeling of nonuniform dose distributions for paired organs."

**Slobodan Devic, PhD; James Monroe, PhD; Sasa Mutic, PhD; Bruce Whiting, PhD; Jeffrey Williamson, PhD**, "Dual energy CT tissue quantification for Monte-Carlo based treatment planning for brachytherapy."

**Robert Drzymala, PhD; Jason Sohn, PhD; Keith Rich, MD; Joseph Simpson, MD, PhD; Todd Wasserman, MD**, "A feasibility study using a stereoptical camera system to verify Gamma Knife treatment."

**Todd Greigert, PhD; James Dempsey, PhD; Daniel Low, PhD; James Purdy, PhD**, "Compensating filters for IMRT I: material characterization and process verification."

**Eric Klein, MS; Daniel Low, PhD**, "Periodic testing for dynamic multileaf collimation."

**Daniel Low, PhD; Sasa Mutic, MS; Eric Klein, MS; Todd Grigereit, PhD; James Purdy, PhD**, "Towards automated quality assurance for Intensity Modulated Radiation Therapy."

**Eduardo Moros, PhD**, "Temperature rise at soft-tissue-bone interfaces during ultrasound thermotherapy: dependence on the initial power delivery protocol."

**Sasa Mutic, MS; Walter Bosch, DSc; Robert Drzymala, PhD; Clifford Chao, MD; Daniel Low, PhD; Jason Lewis, PhD; Duffy Cutler, PhD**, "Multimodality image correlation quality assurance anthropomorphic phantom."

**Joseph Roti Roti, PhD; Kheem Bisht, PhD; Li Li**, research technician; **Peng Zhang, MD; Douglas Spitz, PhD; Prabhat Goswami, PhD; Ryuji Higashikubo, PhD; Robert Malyapa, MD, PhD; William Straube, MS; Eduardo Moros, PhD; Michael Mackey, PhD; Andrei Laszlo, PhD**, "Studies of the cellular effects of 835.62 MHz FMCW and 847.74 MHz CDMA radiation."

**Donald Snyder, PhD; Joseph O'Sullivan, PhD; Bruce Whiting, PhD; Jeffrey Williamson, PhD**, "Object-constrained image-reconstruction for metal artifact reduction in X-ray tomographic imaging of intracavitary brachytherapy patients."

**Jason Sohn, PhD; James Dempsey, PhD; Robert Drzymala, PhD; Eric Klein, MS; Todd Grigereit, PhD; James Purdy, PhD**, "Analysis of small beamlets for IMRT using radiochromic films."

**William Straube, MS; Eduardo Moros, PhD; Robert Myerson, PhD, MD**, "Ionizing radiation and thermal dosimetry for simultaneous thermoradiotherapy: emphasis on electron dosimetry."

**Bruce Whiting, PhD**, "An improved method for forming synthetic fan-beam projections in CT imaging."

**Jeffrey Williamson, PhD**, "Dosimetry and calibration of low-energy brachytherapy sources: implications for dose prescription," "On the dosimetric influences of Air-Kerma strength calibration geometry and internal source structure for 103Pd and 125I brachytherapy sources," "Accelerated Monte Carlo-based dose calculations for brachytherapy planning using correlated sampling."

**Jeffrey Williamson, PhD; Daniel Low, PhD; James Dempsey, PhD**, "Effect of superposition assumption on Monte Carlo dose calculation about shielded gynecological colpostats."





### **Diagnostic radiology and nuclear medicine fellows, residents and trainees for 1999-2000**

(First row, left to right) Doctors Howard Harvin, Naoki Takahashi, Jeffrey Yu, Pratik Mukherjee, Naveen Parti, Bonnie Joe, Reginald Pareja, Avi Mazumdar, Feiyu Xue, Cary Shlimovitz, Donald Blair, and Gabriele De Simon. (Second row) Doctors Brian Lawner; Laura Sievert; Kathleen Gundry; Karen Gladden; Faraz Khan; Christine Menias; Jon Fromke, diagnostic radiology cochief resident; Gilbert Jost, interim director of the Institute; Dennis Balfe, director, Diagnostic Radiology Residency Program; Lawrence Kotner, associate director, Diagnostic Radiology Residency Program; Huy Tran; Mary Wyers; Christine Geraghty; Margaret Lee; Jennifer Gould. (Third row) Doctors Daniel Appelbaum, Agnes Santosa, Mehdi Poustchi-Amin, Grace Phillips, Hank Chen, Olga Kalinkin, Thelma Lopes, Alvaro Huete, Ronan McDermott, Joel Schein, Sailendra Naidu, Francisco Rodriguez, Robert Kadner, Jason Oliphant, Mark Bakalars, Brett Gratz, Scott Lee, Lorin Broadbent. (Fourth row) Doctors Kraig Kirkpatrick, Bartosz Rydzewski, Joseph Konstantarakis, James Wu, James Goddard, Franklin Marden, Stephen Schmitter, Michael Todora, Daniel Fullmer, Scott Anderson, David Mueller, David Jeck, Terry Falk, Theodore Vander Velde, Mark Fister, Matthew Vanasco, Timothy Davis, Peter Chuang, Eliza Shin, Rimvydas Gilvydis, Mark Oswood.



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