

# CT/Angiographic Suite –First in the World

The Department of Radiology is proud to announce the first in the world installation of a unique imaging system that combines an ARTIS FA angiographic suite with a 16-slice CT scanner. This combined system is the vision of Dr. James V. Manzione of the Department of Radiology. The new system will merge the three dimensional imaging possibilities of a state-of-the-art 16 slice/second CT scanner with the angiographic and fluoroscopic capabilities of a state-of-the-art angiographic suite. The system was initially conceived to enhance 3-D imaging of the intracranial vessels during neurointerventional procedures. Unlike conventional single, biplane, and rotational angiography, this system will provide a computer generated 3-D rendering of the entire intracerebral circulation from a single injection of contrast material. The 3-D model may then be rotated in space allowing evaluation of the intracranial vessels and vascular pathology at any angle or orientation. Evaluation of the 3-D model will allow the operator to readily determine if a neurointerventional procedure is feasible and if so the optimal imaging planes for the intervention. Once selected, the coordinates of the optimal planes are transferred to the angiographic C-arm for the neurointerventional procedure. This will eliminate the need for multiple selective catheterizations and multiple views of each vessel catheterized when conventional techniques are utilized. The new technique should increase the safety of neurointerventional procedures by decreasing procedure and catheter time, contrast dose, and radiation exposure. In neurosurgical cases, these techniques

can optimally visualize cerebrovascular and surrounding anatomy enhancing surgical planning.

These techniques should be applicable to other vascular territories. Dr. Manzione anticipates that 3-D imaging will become a part of many angiographic procedures. He believes this combined technology will also play a significant role in cardiac and coronary artery imaging. There will be significant applications in stroke, organ and tissue perfusion studies and quantization of vascular flow. This technology should play an important role in image guided interventions and surgical assessment.

Although designed to merge the capabilities of the CT and the angiographic equipment into a single functional unit, this unique system allows the components to be uncoupled from each other and function as an independent CT scanner and Angiographic room. Dr. Manzione believes the combined and independent capabilities of this equipment will make it the prototypic multipurpose imaging and interventional suite of the future.

The new system should come online in early 2004. Dr. Manzione looks forward to working with colleagues within and outside the Department of Radiology. He has established a Research Committee to which interested parties may submit protocols for consideration. Dr. Manzione can be reached at (631) 444-8192. Fall 2003

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The new CT/ Angiographic Suite

### Another First: Dedicated Breast MRI Workstation at Stony Brook

#### By Paul R. Fisher, M.D.

Associate Professor of Clinical Radiology and Surgery

#### Chief of Breast Imaging

The Carol Baldwin Breast Care Center has a long tradition of technical leadership in Long Island: It was the first academic center in New York State to have digital mammography, and was among the first to have Computer-Aided Detection services. In early July, the Center had another first: A customized state-of-the-art computer workstation for interpreting Breast MRI's. Thanks to the generous grant from Breast Cancer HELP, as well as a grant from the Walk for Beauty-Ward Melville Association, the new CONFIRMA workstation is up and running. There are only a handful of such cutting edge units being used in the US.

Breast MRI has been around for a number of years, but until recently it was not routinely used, for a number of technical reasons. The MRI studies were very good at



### Chairman's Corner

by Donald P. Harrington, M.D., F.A.C.R.



As you peruse through this issue, you will note many significant happenings in the Department of Radiology. We have added five new faculty members to our Department to help us with the ever-increasing demand for imaging services. Our volume of examinations increased over 4.5 percent during the

fiscal year ending June 30, 2003, which brings our annual volume over 200,000 examinations. Based on the summer, we would anticipate a similar growth during this coming year. Last issue, I wrote to you about the changes in equipment that we were planning at Stony Brook University Hospital. Some of these plans have already been realized and some are currently under construction. The CT/Angiography room will be the first on the East Coast and the MRI workstation dedicated to breast imaging utilizing computer aided detection software is also the second on the East Coast. Stony Brook is leading the way for subspecialty imaging for the Long Island community.

July is always an interesting time in an academic medical center with a new class of residents and fellows arriving and the graduating class moving on. This year has been no exception and we welcome another group of exceptional physicians to our Radiology Residency Program. Please join me in welcoming all of our new physicians and wishing the departing group well.

One sad note, for me as Chairman, is the loss of our colleague and friend Karen Gadol. Karen was a wonderful person and radiologist. Karen was Chief of Body Imaging, which encompassed ultrasound, body CT and body MRI. Karen was a young vibrant member of our faculty and her passing has caused all of us great sadness. Karen will certainly be missed by all. We extend to her husband, Alan, her daughter, Hayley and the entire Gadol and Goffner families our deepest sympathy.

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### The Radiology Letter

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Donald P. Harrington, M.D. Michael J. Cortegiano Christine R. Hubbard Chairman Administrator Editor and Staff Writer



### Dr. Lauterbur, 2003 Nobel Laureate

#### Paul C. Lauterbur, Ph.D.,

former Professor of Chemistry and Radiology at the Stony Brook University, won the 2003 Nobel Prize for Medicine. A seminal

report was published in 1973 in the Journal *Nature*, documenting for the first time that an image could be derived from the process of nuclear magnetic resonance. Dr. Lauterbur was appointed Professor of Radiology in the late 1970's shortly after the Department of Radiology was founded to further support his research endeavors to develop clinical correlations.

# Managed Care Update

Aetna Healthcare

American Medical & Life APA Partners (formerly HHS) BCE emerges (formerly Up and Up) Beech Street

BC/BS Managed Care Network

(HMO, PPO, Federal Employees, SR Plan, Indemnity, Child Health Plus, Out of State) Empire Fed Emp. Empire Deluxe, Blue Choice Sr. Plan)

Cambridge

CIGNA (HMO, Open Access PPO) First Health

GHI (HMO, PPO, EPO)

- HealthFirst (HMO, 1199, Medicaid, Child Health Plus, Family Health Plus, Health First NY, Health First 65 plus)
- HIP (HMO, Healthcare Partners, Hip Access, VIP, Prime, Medicaid, Child Health Plus, Family Health Plus)
- Horizon (HMO, Vista, Vista Plus, PPO, Standard, Standard Plus) Island Group Administrators J.J. Newman Local 1199 National Benefits Fund (Members Choice) Magna Care MDNY (Select, Value, Lia, Direct HMO/POS, Classic HMO/POS, Focus/Flex) Medichoice Metropolitan Empire Multiplan Oxford (Liberty, Freedom, Oxford USA) Sierra Suffolk Health Plan **US** Healthcare USI (formerly Select Pro) Vytra Healthcare (HMO, Suffolk County, East End Health Plan, Direct Access HMO, Central Suffolk Hospital, Southampton Hospital, Southside Hospital, Suffolk Employees School Health Plan)

### Welcome New Faculty



**Sheri Ford, M.D**. joined the faculty staff as an Assistant Professor of Clinical Radiology in the Division of Breast Imaging. Dr. Ford received her medical degree from the Wayne State

University in Detroit, Michigan, followed by a Radiology residency at Stony Brook. Previous appointments include the Huntington Medical Group in Huntington, New York, the Radiologic Health Services in Smithtown, New York, and the North Suffolk Surgical Associates, PC in Port Jefferson.



#### Margaret Johnstone, M.D.

joined the faculty staff as an Assistant Professor of Clinical Radiology in the Division of Breast Imaging. Dr. Johnstone was previously a member of the voluntary faculty since

1982, and Chief of Radiology at the Veterans Administration Medical Center in Northport. Dr. Johnstone received her medical degree from the University of Colorado Medical Center in Denver, Colorado, followed by an Internal Medicine residency and Radiology residency at the Kings County Hospital/Downstate Medical Center in Brooklyn, New York. She also completed an Ultrasound fellowship at the Nassau County Medical Center in East Meadow, New York. Dr. Johnstone is Board Certified in Radiology.



Seth O Mankes, M.D. joined the faculty staff as an Assistant Professor of Clinical Radiology in the Division of Cross-sectional Imaging. Dr. Mankes received his medical degree

from the New York University School of Medicine in New York, New York, followed by an Internal Medicine residency at The Mount Sinai Hospital in New York, New York and a Radiology residency at the New York University Medical Center in New York, New York. He also completed an Abdominal Radiology fellowship at the New York University Medical Center. Dr. Mankes' previous appointment was at Brookhaven Memorial Hospital where he was Director of Radiology. Dr. Mankes is Board Certified in Radiology and has a Certificate of Added Qualifications in Neuroradiology. He is a member of the American College of Radiology, Radiological Society of North America, American Roentgen Ray Society and the American Medical Association.



**Paul L. Vitulli, D.O.** joined the faculty staff as an Assistant Professor of Clinical Radiology in the Division of Special Procedures and Interventional Radiology

and Diagnostic Radiology. Dr. Vitulli received his medical degree from the New York College of Osteopathic Medicine in Westbury, New York, followed by a Rotating internship at the Long Beach Medical Center in Long Beach, New York and a Radiology residency at the St. Barnabas Hospital in Bronx, New York. He completed an Angiography and Interventional fellowship at Stony Brook. Dr. Vitulli is Board Certified in Radiology. He is a member of the Society of Interventional Radiology, American College of Radiology and American Osteopathic Association.



**Zengmin Yan, M.D.** joined the faculty staff as an Assistant Professor of Clinical Radiology in the Division of Neuroradiology and Diagnostic Radiology. Dr. Yan received his medical degree from the Central

South University Xiangya School of Medicine in Changsha, Hunan. He completed a Radiology residency in China at the Xiangya Hospital where he was Chief Resident in his last year, followed by an attending year. He also completed a one-year residency in Surgery at the New York University Medical Center, followed by a Radiology residency and a fellowship in Neuroradiology at Stony Brook. Dr. Yan is Board Certified in Radiology. He is a member of the American College of Radiology, Radiology Society of North America, New York Radiological Society, and the American Society of Neuroradiology.

### News

Donald P. Harrington, M.D. Named President-Elect SCARD

Zvi H. Oster, M.D. appointed Associate Editor of *Radiology* 



## Dedicated Breast MRI Workstation at Stony Brook

#### Continued from Cover

finding breast cancer, but they also showed a lot of false alarms, leading to increased "unnecessary" biopsies. The study itself is somewhat expensive, requires an IV to administer contrast. Over the years, the scans themselves have been modified to produce better and better information, and we have learned to read the MRI images more accurately, reducing somewhat the false alarms. The length of the exam has been somewhat reduced, so that the exam is less uncomfortable than before.

However, the studies generate typically 500 or more detailed images of the breast, and it has been a time-consuming task to review all those images carefully to render an impression. In many cases, the images have to be compared to each other. Curves are generated which illustrate the change in contrast enhancement, over time, for specific regions of interest. This laborintensive interpretation would typically take an hour or longer for each radiologist studying a single case.

The CONFIRMA dedicated breast MRI workstation is designed specifically to deal with the complex demands of the Breast MRI study in an efficient and thorough manner. For example, the workstation automatically realigns the series of images, so that the images may be processed efficiently and accurately. With the realignment, one image may be "subtracted" from the next, highlighting areas of contrast enhancement and minimizing motion artifact, which has been a significant confounding effect. In other words, the realignment across MRI series increases the



The workstation produces three-dimensional images of the lesions, along with prominent vessels. These images can be rotated in real time.

signal to noise ratio of the subtracted images substantially.

Furthermore, the CONFIRMA workstation scans the entire breast for contrast enhancement curves, rather than limiting the curves to operator selected regions of interest. At each point in pace, called a voxel, a "mini-curve" is generated, and the workstation determines if the curve is worrisome for cancer. Then, that voxel is color coded on the image, with red dots signifying curves highly suspicious for cancer, blue dots for benign appearing curves, and green dots at an intermediate level of risk for carcinoma. The radiologist can quickly look at one set of images that have these colored voxels, and obtain a more accurate picture

> of the enhancement pattern at a fraction of the time normally consumed.

Finally, the CONFIRMA workstation can draw three-dimensional representations of the data, which can be displayed and rotated in real time. This can help illustrate the location of a tumor relative to the chest wall, or a prominent vessel, or the nipple, and the relative position and distance between multiple lesions. Surgeons can use these 3-D images for surgical planning, as well as planning biopsy approaches.



Mammography showed a cancer in the right breast. This MRI image, enhanced with color by the workstation, shows in fact two cancers (a second small one is seen behind the nipple anteriorly).

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appointments can be made by calling (631) 444-6919.

Patient

## **Residency and Fellow Graduation Dinner**

The Residency Graduation Dinner was held on June 19, 2003 at the Port Jefferson Country Club in Port Jefferson. The event was sponsored by Fuji Medical Systems U.S.A., Inc. Fuji Executives John Weber, Senior Vice President of Operations, Jack Taggart, Manager, Professional Practice and Tony Brady, Account Manager were present. It was good to see former alumni Drs. Jayne Bernier, Kathleen Finzel, Steven Lee, Harold Parnes, and Siram Satyanath. Congratulations to Maha Barazanji, M.D., LinlinFu, M.D., Sandhaya Singh, M.D. and Faranak Tafazoli, M.D. in completing their four year Radiology Residency Program and passing the oral boards in Radiology.

Mark DeSantis, M.D. completed a Body Imaging fellowship; Xia Lei, M.D. an MRI Research fellowship; Annrose Thomas, M.D. completed a Neuroradiology fellowship; Paul Vitulli, M.D. completed a Special Procedures fellowship and Zengmin Yan, M.D. completed a Neuroradiology fellowship. Drs. Vitulli and Yan are now on board as full-time attendings.

Drs. Cora Cabahug and Paul Fisher were the recipients of the "Teacher of the Year Award". Dr. Ferretti's unknown case contest winner was Dr. Sandhaya Singh who received a textbook of her choice. Dr. William Moore received the Roentgen Resident/Fellow Research Award (FSNA Research and Educational Fund) for his accomplishments in radiological investigation.

Many thanks to Dr. Steven Perlmutter, Director of the Residency Program, Kathleen Finzel who was the former Director of the Residency Program, Linda Erickson, Coordinator of the Residency Program, Jerri Christiano, former Coordinator of the Residency Program and Chris Hubbard for organizing the event. Also, many thanks to the faculty and support staff for their hard work and dedication.



Steven Perlmutter, M.D. (left) and Kathleen Finzel, M.D. (right) congratulate Maha Barazanji, M.D. (center) in completing her four-year Radiology Residency Program



Dr. Perlmutter (left) and Dr. Finzel (right) congratulate Faranak Tafazoli, M.D. (center) in completing her four-year Radiology Residency Program



Dr. Perlmutter (left) and Dr. Finzel (right) congratulate Sandhaya Singh (center) in completing her four-year Radiology Residency Program



Dr. Perlmutter (left) and Dr. Finzel (right) congratulate Linlin Fu, M.D. (center) in completing her fouryear Radiology Residency Program



John Ferretti (left) and James Manzione, M.D. (right) congratulate Paul Vitulli in completing his Special Procedures and Interventional fellowship



Harris Cohen, M.D. (left) congratulates Mark De Santis, M.D. in completing his Body Imaging fellowship



Paul Fisher, M.D., Teacher of the Year Award recipient, receives congratulations from Maha Barazanji, M.D.



Sandhaya Singh, M.D., winner of the unknown case contest, accepts textbook of her choice from John Ferretti, M.D.



William Moore, M.D. was the recipient of the Roentgen Resident Fellow Research Award

### 24th Annual Radiology Research Seminar

The Seminar, in conjunction with Winthrop University Hospital in Mineola, was held on Wednesday, May 21, 2003 in the Harold T. Atkins Learning Center. The third and fourth year residents gave the following presentations.

#### Lewis Shin, M.D.

Protocols for and Utilization of CT for Suspected Acute Appendicitis in Adults A Survey of US-Based Academic and Private Practice Radiology Practices Winthrop University Hospital, Mineola, NY

#### Robert Ashton, M.D., Ph.D.

Functional MRI – A Useable Technique for the Average Neuroradiologist? University Hospital and Medical Center, Stony Brook, NY

#### Faranak Tafazoli, M.D.

MRI Imaging of Periurethral Collagen Injections for Urinary Incontinence University Hospital and Medical Center, Stony Brook, NY

#### Chris T. Hsu, M.D.

Utility of sonography for the Evaluation of Suspected Urolithiasis in Pregnancy *Winthrop University Hospital, Mineola, NY* 

#### Alex Rosioreanu, M.D.

Operator Safety During Spine Interventions Radiation Exposure Levels During Spine Interventional Procedures: A Comparison Between Vertebroplasty and Kyphoplasty *Winthrop University Hospital, Mineola, NY* 

#### William Moore, M.D.

Gadolinium Based Contrast Agents for CTA University Hospital and Medical Center, Stony Brook, NY

#### Jonathan S. Luchs, M.D.

Utility of Hematuria Testing in Patients with Suspected Renal Colic: Correlation with Unenhanced Helical CT Results

Can Small and Large Bowel Luminal Opacification on Routine Abdominal and Pelvic CT be Improved by Administration of Additional Oral Barium?

Right and Transverse Colonic Diverticulitis: CT Diagnosis, Incidence and Several-Year Natural History in a Western Patient Population *Winthrop University Hospital, Mineola, NY* 

#### Punit Aghera, M.D.

Understanding the Role of CSF in Brain Perfusion University Hospital and Medical Center, Stony Brook, NY

### **MRI** Research Center

By Mark Wagshul, Ph.D.

#### Director of MRI Research

The Magnetic Resonance Research Center is located on Level 4 of Stony Brook University Hospital. The facility is centered on a whole-body 1.5 Tesla MRI scanner with ultra-fast echo-planar imaging capabilities (450 sq. ft. imaging area). Other features include a 300 sq.ft. animal preparation area and electronics lab, a Medrad power injector for perfusion and angiography work, an HP network analyzer for RF coil design and construction and a high-end image processing workstation. The four faculty members of the Center are leading numerous MRI research programs involving collaborations with other Stony Brook University departments, including Neurology, Neurosurgery and Psychology. We are currently in the planning stages of upgrading the MRI unit to a 3 Tesla Philips whole-body scanner with advanced capabilities such as parallel imaging and functional MRI. Other Center capabilities include RF coil design, MRI pulse sequence design, image processing, and MRI spectroscopy. The laboratory currently supports 4-5 graduate students and one postdoctoral associate.

#### **Ongoing projects in the Department of Radiology:**

**Breast:** development of techniques with improved specificity for identifying malignant lesions, using dynamic contrast enhancement, MR spectroscopy and perfusion imaging.

**Multiple sclerosis:** 1) numerous drug studies are being undertaken to investigate the progression of MS lesions during drug treatment. 2) Use of MR spectroscopy to follow progression of disease. 3) Volumetric analysis of healthy brain tissue and MS lesions as a measure of MS progression.

Autism: Analysis of MR spectroscopy as a measure of autistic deficit.

**Functional MRI:** Use of the BOLD MRI technique for measurement of cognitive processes and tracking the progress of patients recovery from speech deficits following stroke.

**Hydrocephalus:** Development of new models of intracranial flow, analysis of flow patterns in healthy volunteer populations and in hydrocephalus and arachnoid cysts, development and analysis of the affect of shunting on flow in brain and spine. Animal models of hydrocephalus and increased intracranial pressure invasively study the effects on intracranial flow.

# New Fellows and Residents

### Residents



Khaldoon Al Dulaimy, M.D. received his medical degree from the Baghdad College of Medicine in Iraq, completed a PGYI Surgery residency at the Lenox Hill Hospital, New York, New York and is a PGY2 year Diagnostic Radiology resident at the

University Hospital Medical Center at Stony Brook.



**Charles J. Girard II, M.D.** received his medical degree from the Jefferson Medical College in Philadelphia, Pennsylvania, completed a PGY1 Internal Medicine internship at the Lankenau Hospital in Wynnewood, Pennsylvania and is a PGY2 year

Diagnostic Radiology resident at the University Hospital Medical Center at Stony Brook.



**Mohit M. Naik, M.D.** received his medical degree from the University of Pittsburgh School of Medicine in Pittsburgh, Pennsylvania, completed a PGY1 Internal Medicine residency at the Graduate Hospital in Philadelphia, PA and is a PGY2 year

Diagnostic Radiology resident at the University Hospital Medical Center at Stony Brook.



Shah P. Numani, M.D. received his medical degree from the S.C.B. Medical College in Cuttack, India, completed a PGYI Surgery year residency at the Jacobi Medical Center/Montefiore Medical Center, Bronx, New York and is a PGY3 year

Nuclear Medicine resident at the University Hospital Medical Center at Stony Brook.



**Amit Patel, M.D.** received his medical degree from the State University of New York Upstate Medical University at Syracuse, New York, completed a PGYI Transitional year residency at the Christiana Care Health System, Newark, Delaware and is a PGY2

year Diagnostic Radiology resident at the University Hospital Medical Center at Stony Brook.

### **Fellowships**



**Giovindarajan Narayanan, M.D.** is a fellow in the Angiography and Interventional Division. He completed a Diagnostic Radiology residency at the Saint Barnabas Medical Center in Livingston, New Jersey.



**Rita S. Ratani, M.D.** is a fellow in the Cross-sectional Imaging Division. She completed a Radiology residency at the New York Methodist Hospital in Brooklyn, New York.



Annrose M. Thomas, M.D. is a fellow in the MRI Division. She completed her Diagnostic Radiology residency at the Beth Israel Medical Center in New York, New York, followed by a Neuroradiology fellowship at SUNY, Stony Brook.



Janani Vivekanandarajah, M.D. is a fellow in the Cross-sectional Imaging Division. She completed her Diagnostic Radiology residency at the Hackensack University Medical Center in Hackensack, New Jersey.



Steven F. West, D.O. is a fellow in the Neuroradiology Division. He completed a Diagnostic Radiology residency at the Nassau University Medical Center in East Meadow, New York.

# RADIOLOGY LETTER

A Radiologist's Approach to Imaging Vistas = State University of New York at Stony Brook

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Zvi H. Oster, M.D. Professor Emeritus of Radiology

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#### John A. Ferretti, M.D.

Electrical Engineering

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