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Meet Your New President

Pamela Vincent, MPA, R.T., (R)(M)(CT)(MR)



"There are so many MR techs that have never heard of the SMRT. I'd like to see us reach those technologists and promote our society in areas where we are not known."

Signals: When did you first become involved with MRI?

I have been a registered Radiologic Technologist since 1980. In the late 1980s I worked as a CT technologist and began teaching cross sectional imaging. It was at that time my interest in MRI led me to begin pursuing additional education in MRI. I have been actively employed as a full time MRI technologist since 1995.

Signals: What was the path that led you to the National Institutes of Health?

Continuing education has always been important to me. I was working as an MRI technologist in a private office and attended a local regional seminar. At that seminar a talk on Cardiac MRI caught my interest, so I started reading and investigating this area of MRI. We did not do any cardiac imaging at our office, therefore, I knew that to have a chance of getting a position in this area of practice, more training would be needed. I went to New York City and attended a course on cardiac MRI. Upon returning home, I found out that a position in Cardiac MRI had opened up at the NIH. I inquired about the position, and a short time later was offered the job. I have been with the Heart, Lung and Blood Institute at NIH since 2003.

Signals: Why do you find cardiac MR research so interesting?

Scanning the heart is fascinating. It is unlike any other body part. When I started scanning the heart, I found there was so much more to learn. I do both clinical and research cardiac scanning. The NIH is not a typical hospital. Even though I am doing clinical scans, everything done here is considered research. Working at the NIH, I have the opportunity to provide care to patients from all over the world with many rare and unique conditions and diseases, not seen in other medical facilities. It is very rewarding to participate in the care of these patients who have come here looking for that one treatment that will make a difference and possibly extend their lives. Not only do I get to participate in scanning, but I also have the opportunity to participate in data analysis. I get to see the results and know that what I am doing is making a difference. At the same time, I have learned so much about cardiology and cardiac disease.

I am also involved in research and development working with scientists who are developing hardware and software for cardiac MRI. We are always looking for new and

SMRT
18th Annual Meeting
coverage begins
on page 4!

improved ways to image the heart. Being on the cutting edge of technology is very exciting. I get to see technology go through the different stages of development from the original concept to the point of being released as a product.

Signals: You were instrumental in organizing the first International Forum at the SMRT meeting in Berlin. Do you plan on promoting the SMRT on a global scale while you are president?

Yes, I do plan to promote the society on a global scale. It is essential that people realize we are an international organization. Currently we have several Policy Board members from outside the US who I hope, will be helpful in this effort. I recently had the honor of attending the BeNeLux Regional Meeting in Amsterdam, The Netherlands which was very successful. Events of this type can help spread the word about our society. We hope to have more regional seminars outside the US in the future.

We are also currently working on an initiative to obtain credit for our meetings for our UK members. This is in the early stages, but I feel it is important to meet the needs of all of our members. Along with the Policy Board, we will be looking for ways to reach out to the international community.

Signals: What other goals do you have as President?

Wendy Strugnell and I worked very closely together this last year on many projects. Many of those will be ongoing. Specifically, a few of my goals are:


- to continue the effort to provide more online CE modules for all of our members. This has been well received, and there will be more to come this year.
- in addition to reaching our international members, it's also important to continue to reach out to North American technolo-

gists. There are so many MR techs that have never heard of the SMRT. I'd like to see us reach those technologists and promote our society in areas where we are not known.

- to promote voting amongst our membership. So few of our eligible members are involved in the voting process, and I'd like to see this change. Voting is an important membership benefit and guides the future of our society.
- to promote our chapters and our regional seminars as one way to encourage membership. We have several new chapters on the horizon which I am very excited about.

We are also looking at student involvement in the SMRT. I have already begun looking into the student membership category and am looking for ways to restructure it. This includes the submission of student scopes, and presentation of the John Koveleski Award. I would like to see this award given to a deserving student this year. Students are our future, so we need to find ways to get them involved. If we can get them involved at this early point in their MRI career, it is more likely they will stay on as full SMRT members.

Signals: Any final thoughts you would like to share?

I am honored to have been elected to be your President for 2009-2010. We have a very diverse and highly qualified group of individuals on the Policy Board and Executive Committee who represent you. I look forward to working closely with them over this next year. This is your society, and we are here for you. If you have any questions or concerns over the next year, please don't hesitate to contact me. 



PRESIDENT'S 2009-2010 GOALS

To continue the effort to
provide more
online CE modules
for all of our members.

To continue to reach out
to North American
technologists.

To promote voting
amongst our membership.

To promote our chapters
and our regional seminars
as one way to encourage
membership.

Contact SMRT President Pamela Vincent:
vincentp@nhlbi.nih.gov



Editor's Letter

Julie Strandt-Peay B.S.M., R.T., (R)(MR), FSMRT
Editor, Signals

"It is the countless volunteer hours of those who have committed to serve that make the organization work, thrive, and serve its members."

Greetings,

Aloha! This issue of *Signals* is packed with coverage from the recent SMRT Annual Meeting held in Honolulu, Hawai'i, USA. We begin by getting to know the new SMRT President, **Pamela Vincent** who began her term during the meeting. **Ben Kennedy**, 2009 Program Chair walks us through the informative and stimulating sessions. Past-president and Chair of the Awards Committee, **Carolyn Bonaceto** presents those individuals who were recognized for their efforts on behalf of the SMRT. **Sonja K. Robb-Belville**, Chair of the 2009 Education Committee explains the contributions of the proffered papers and posters award recipients. We get down to serious business with the account by **Vera Miller**, SMRT Secretary who describes the activities of the SMRT business meeting. The 2009 ISMRM/SMRT Joint Forum was Co-Chaired by **Caron Murray** who reports on the success of that venture.

Continuing into the future of the SMRT,

immediate Past-president, **Wendy Strugnell** gives us a comprehensive explanation of the process, commitment, and importance of selecting new SMRT Policy Board members. The SMRT receives invaluable support from the staff at the ISMRM office in Berkeley, California, USA; however it is the countless volunteer hours of those who have committed to serve as committee members, Policy Board members or officers that make the organization work, thrive and serve its members.

As per the SMRT by-laws, the immediate Past-president is also the Chair of the Awards Committee, and Wendy is soliciting your in-put to recognize those who have served the SMRT and MR education in an exceptional way.

One of the most valuable member benefits of the SMRT is the Educational Seminars Home Study series. **Anne Marie Sawyer**, Editor announces the latest program.

Chapter Chat welcomes guest author, **Betsy**

Sestina who Co-chaired a successful chapter meeting in Denver, Colorado, USA. Read about her program and give some serious thought to starting a SMRT chapter in your area or perhaps hosting a regional seminar.

We welcome back MR Safety expert **Frank Sherlock**, who warns us about an unsafe device that may be present in our patients. Dr. Sherlock explains how to obtain the Reference Manual for Magnetic Resonance Safety, Implants, and Devices: 2009 Edition which is now available.

An invitation to attend the 2010 Annual Meeting is extended by **Michael Macilquham**, Program Chair, who states that plans are already underway to provide a quality educational program in Stockholm, Sweden.

Upcoming educational events are listed, and as always you are encouraged to visit the SMRT web-site often to learn of activities that may interest you.

Happy reading!

Past, Present, and Future Presidents of the SMRT



From Left to Right: Julia Lowe, President-Elect; Pamela Vincent, President; Wendy Strugnell, Immediate Past President; Carolyn Bonaceto, Past President 2009.



Annual Meeting Report “Evolution of MR Innovation”

Ben Kennedy, B.App.Sc. (MIT) MMRT
Chair
2009 Program Committee

“This year has received much positive and constructive feedback to use in preparation for Stockholm, Sweden in 2010.”

The 18th SMRT Annual Meeting was held in Honolulu, Hawaii, USA, on 18th and 19th of April. This year's program, attended by over 270 technologists and radiographers from around the world, was grouped into forums striving to balance the technical perspective, radiological perspective, and new horizons of MRI capabilities.

Saturday was opened with a welcome from our 2008-2009 SMRT President, **Wendy Strugnell, BAppSc.** Meeting announcements were made by the Program Chair, **Ben Kennedy, BAppSc., MMRT** and we were under way. **Jane Francis, DCR, (R) DNM** introduced our Physics and Technology Forum. **Don Plewes, Ph.D.**, started the day with an exciting new visual perception of generating an MR signal and understanding k-space. This was complimented by **Bill Faulkner's, B.S., R.T., (R)(MR)(CT)** topic, “MRI Pulse Sequences,” walking through the generation of pulse sequences and how they have evolved.

After a break, **Randy Earnest, B.S., R.T., (R)(MR)** introduced our MRI Safety Forum. **Frank Shellock, Ph.D., FACC, FACSM** presented his update on MR Safety and also introduced **Terry Woods, Ph.D.**, to give the FDA perspectives on new labeling of implants and devices. Her presentation attracted many questions in this challenging environment.

Before lunch, the SMRT Business Meeting was held. **Wendy Strugnell** discussed the current directions of the SMRT. The president's gavel was passed from **Wendy Strugnell, BAppSc.** to **Pamela Vincent, MPA, R.T., (R)(M)(CT)(MR)** our 2009-2010 President. Pamela spoke to the group regarding her vision for the SMRT and the challenges to be faced in the coming year. **Steve Shannon,**

SMRT Treasurer then discussed our current financial situation and future prospects in giving value for money to our members whilst increasing revenue from sponsorship.

Gina Greenwood, SMRT External Relations Co-chair discussed SMRT's position as an Affiliated Section of the ISMRM. This was a very successful meeting in getting valuable information to our members in a very concise manner, and a chance for the Policy Board and Executive Committee to be recognized by our professional community in attendance.

After lunch, **Maryann Blaine, MAT, B.S., R.T., (R)(MR)** introduced the award winning proffered papers from our inspiring colleagues from around the world. This year's number of submissions was record breaking. Special congratulations to **Shawna Farquarson, B.Sc., M.Sc.** who presented the President's Award winning paper “MRI Fibre Tracking of the Corticospinal

Tracts for Neurosurgery: Diffusion Tensor Imaging (DTI) vs. Constrained Spherical Deconvolution (CSD).”

Our 3T Forum was a wonderful insight into optimizing 3T MRI with **William Faulkner, B.S., R.T., (R)(MR)(CT)** once again, he brilliantly discussed factual information in what really makes a difference in 3T image quality across multiple vendors and dispelled many 3T myths.

The Body Forum started with **Nancy Talbot, MAppSc, M.R.T., (R)(MR)** describing abdominal pathology and technique, which was well complimented by **Dr. Jeff Weinreb's** “Interpretation of Hepatic MRI” and **Dr. Masoom Haider's** discussion on “MRI of the Prostate.”

Sunday morning was opened by our new 2009-2010 SMRT President, **Pamela Vincent, MPA, R.T. (R)(CT)(MR)** and **Sonja Robb-Belville, B.S., R.T., (R)(MR)** introduced our Pediatric Forum. **Michael Ditchfield, MBBS, M.D., FRANZCR** started with an excellent radiological perspective of the “Pitfalls of Pediatric Image Interpretation.” This was complimented with a comprehensive presentation by **Stephen Darty, B.S., R.T., (N)(MR)** on “Congenital Heart MRI.”

Our Neuro Forum was introduced by **Ashok Saraswat, M.S., BEd. R.T., (R)(MR)**. **Robert Witte, M.D.** presented the latest “Advances in Epilepsy Imaging” which introduced many complimentary techniques to give a holistic perspective. This was followed by **Barry Southers, BRST, R.T., (R)(MR)** presenting “Principles and Practices of Functional MRI” which also included practical examples of current work in the clinical environment. **Derek Jones, Ph.D.** then gave a very entertaining presentation on “(Some of)



Meeting attendees enjoy the floor-to-floor view in the Hawai'ian Convention Center in Oahu.

What You Always Wanted to Know About DTI - But Were Afraid to Ask." His ability to adapt with audio-video difficulties was astounding and added much entertainment to a challenging topic.


After lunch **Joseph Castillo, B.Sc., M.Sc.** introduced more inspiring proffered papers followed by the Musculoskeletal Forum. **John Skinner, M.D.** presented "MRI of the Ankle and Hind Foot" and the session concluded with "MRI of the Hand and Wrist" by **Kimberly Amrami, M.D.** Both topics gave valuable radiological perspective in which questions are required for us to answer technically.

The SMRT Awards Ceremony was presented by our President, **Pamela Vincent** as well as Program Chair, **Ben Kennedy** and Education Chair, **Sonja Robb-Belville**. Awards were presented to the paper and poster

submissions judged the best. SMRT Awards were granted to the following: The 2009 Crues-Kressel Award was presented to **Cindy Hipps, BHS, R.T., (R)/(MR)**. **Gina Greenwood, MBA, R.T., (R)/(MR)** and **Donna O'Brien, R.T., (R)/(CT)/(MR)** were the recipients of the 2009 Fellow of the Section Award. The Distinguished Service Award was bestowed on **Bobbie Burrow, R.T., (R)/(MR)/(CT)**. **Herbert Kressel, M.D.** received the SMRT Honorary Member Award. Congratulations to these recipients for their well earned recognition of their dedication and valuable contributions to the SMRT and worldwide MRI education.

Anne Sawyer, B.S., R.T., (R)/(MR) introduced our final forum "Emerging Technologies" which was a very exciting look into our near future. **Graeme Bydder, M.B., Ch.B.** presented "Ultra-Short TE (UTE) Imaging" investigating anatomy we are seeing for

the first time in MRI. **Michael Moseley, Ph.D.** presented the latest in "Molecular Imaging" using MRI, which was very entertaining as well as showing where we are going in higher specificity in our future. **Cynthia Harper-Little, R.T., (R)/(MR)** discussed "Lung Imaging using Hyperpolarized Helium" which has been developing from the research setting slowly into a clinical possibility with available resources.

I would like to thank everyone on the Program and Education Committees for all the hard work over the last year, and in particular **Wendy Strugnell** for her support and guidance in achieving such a successful meeting. This year has received much positive and constructive feedback to use in preparation for Stockholm, Sweden in 2010. We look forward to seeing everyone again next year! 



2009 SMRT AWARD RECIPIENTS

Carolyn Bonaceto, B.S., R.T., (R)/(MR)
Chair, Nominations and Awards Committee

"The SMRT is a reflection of its membership and these individuals represent the best of that group."

On Sunday of this year's SMRT 18th Annual Meeting in Honolulu at the Hawai'i Convention Center, SMRT President, **Pamela Vincent** was able to acknowledge several well deserving individuals. During the Award's Presentations the attendees had the opportunity to recognize and thank these people who have been instrumental in ensuring that the best in MR specific education for technologists is affordable and available.

Cindy T. Hipps, B.H.S., R.T., (R)/(MR)

2009 Crues-Kressel Award

Editor's Note: The recipient of the Crues-Kressel Award is determined during the SMRT election process. Please see the previous issue of Signals (Number 68-2009 Issue 1) for the profile on Cindy, included with the election results.

Donna O'Brien, R.T., (R)/(CT)/(MR)
2009 Fellow of the Section Award



The Fellow of the Section Award is given in recognition of significant and substantial contributions to the mission of SMRT

and this year the Awards Committee was honored to be able to recognize two very deserving SMRT members.

Donna is a charter member and organizer of the first SMRT Chapter located in Atlanta, Georgia. For the last 22 years, she has

co-organized and has hosted many Atlanta Chapter and Regional meetings annually. The chapter has provided countless hours of MRI continuing education in the Atlanta area and neighboring states. As a result, many new members have been introduced to the benefits of SMRT membership

At the 11th SMRT Meeting in Hawaii, Donna was awarded the Distinguished Service Award for her accomplishments. For several years, she has served as a member of SMRT leadership as a Policy Board Member as well as other committees within the SMRT. Donna is a charter member of the SMRT and has been active since the inception of the Section. Donna is dedicated to the principles that this organization was founded upon and is still an avid promoter of the organization.

Gina M. Greenwood, MBA, R.T., (R)/(MR)
2009 Fellow of the Section Award



Gina has always been passionate about staying current in the field of MRI and in identifying ways to rouse that desire for

knowledge in those around her. She has been a member of the SMRT since early 1990's, first serving on several committees. In 2000, she was elected to serve on the Policy Board. As a Policy Board member she has held many important roles including Membership Committee Chair, Program Chair for the 2002 Annual Meeting, and Secretary of the Section. Currently, Gina serves as Co-Chair for the External Relations Committee and is a member of the Finance and RCEEM Committees. She is a wonderful speaker and has had the opportunity to present at SMRT Regional Meetings in Iowa, Wisconsin and Pennsylvania, and also at the SMRT Annual Meeting in Seattle. Gina has thoroughly enjoyed being actively involved in furthering the mission of the SMRT. Gina has been an integral part of the leadership team that has been so successful at developing the SMRT into such a vibrant international organization. Always very humble about her accomplishments with SMRT, she is extremely deserving of this award for her tireless work on behalf of SMRT.

Bobbie Burrow, R.T., (R)/(MR)/(CT)
2009 Distinguished Service Award



This award is given to recognize outstanding contributions and an extreme level of effort and

service to operation, effectiveness, and good reputation of the Section. And this year's recipient exemplifies that description.

Bobbie is an extremely gracious and welcoming person who has helped bring the benefits of the SMRT to so many technologists in her own local region as well as the global community. If you have had the pleasure to get to know Bobbie through her work, you are truly lucky.

Bobbie has been a member of the SMRT since its inception in the early 1990's. She has demonstrated how deserving she is of this award in countless ways. She has served as a question writer for many of the SMRT Home Studies. She is a much sought after speaker and as such, has been an invited speaker to many national symposiums as well as SMRT Chapter and Regional meetings. Along with her other Georgia colleagues, Bobbie was instrumental in establishing the very first SMRT Chapter of Atlanta which continues to be successful for promoting technologist education through chapter and regional meetings. Thanks to her work in Georgia, the technologists in that region are assured that they have an opportunity to get together with their local colleagues annually to hear lectures on the basics in MRI, improved patient care, safety, and the latest in MRI technology. As recognition for her work, she was awarded Fellow of the Section at the national SMRT in Seattle in 2006.

Bobbie currently manages operations at a very busy MRI center at Emory Healthcare and is involved with cutting edge imaging techniques. She continues to be a spokesperson for MR technologist education. Bobbie truly enjoys her job and the people she works with. The SMRT has been and continues to be a major part of her career.

Herbert Y. Kressel, M.D.
2009 Honorary Member Award

The Honorary Member Award is given annually in recognition of extraordinary

achievement and exceptional levels of service and support for the Section and the mission of SMRT, and there can be no one more deserving than Dr. Herbert Kressel.



Dr. Kressel has been supporting technologist's education and SMRT since its inception. In 1990, at the ISMRM Annual Meeting in New York, Dr. Kressel

along with Dr. John Crues lead a business meeting with 18 MR technologists from across the nation who made up the original SMRT Steering Committee. As a result of that meeting, several SMRT committees were started including Membership, Bylaws, Nominating, Education, and Program. In 1991, Dr. Kressel along with Dr. Crues was presented with the first Crues-Kressel Award for outstanding achievements in MR technologist education. The award continues to be presented annually to recognize and most importantly thank individuals whose focus on technologists' education is evident in everything they do.

Over the years, Dr. Kressel has continued to ensure quality MR technologist's education worldwide by accepting speaking engagements at annual meetings and SMRT regional meetings. Locally, the technologists in the New England region are very grateful for his continued support.

Dr. Kressel is currently the Editor for Radiology. SMRT is grateful for his past and continued support.

Please congratulate each of these Award recipients. The SMRT is a reflection of its membership and these individuals represent the best of that group. They are all very deserving of these accolades. [S]



SMRT Award Presentation — 2009 President's Award

The most outstanding proffered paper of the SMRT 18th Annual Meeting

Shawna Farquharson, B.Sc., M.Sc., Chief MR Research Radiographer

Brain Research Institute, Melbourne, Victoria, Australia

MRI Fibre Tracking of the Corticospinal Tracts for Neurosurgery:

Diffusion Tensor Imaging (DTI) vs. Constrained Spherical Deconvolution (CSD)

Introduction: Diffusion-weighted MRI based tractography aims to delineate white matter fibres in the brain *in vivo* and has recently generated extensive interest in the literature. Many current techniques use the diffusion tensor model (diffusion tensor imaging; DTI) to characterise the diffusion properties of brain tissue, but this model has been shown to be inadequate in regions containing more than one fibre orientation. The fundamental limitation of tensor-based tractography methods is that a single diffusion tensor is unable to characterise multiple fibre orientations within a single voxel. As a result, it provides unreliable tractography information in many regions in the brain that are of neurosurgical interest, such as the corticospinal tracts [1,2]. The dangers of relying on tensor-based tractography for neurosurgical navigation were recently reported by Kinoshita et al [2], who cautioned that whilst it is possible to visualise some parts of the motor tracts using tensor-based tractography, the technique fails to depict the entire motor tract especially under pathological conditions. We have recently proposed constrained spherical deconvolution (CSD), a novel method for the estimation of the fibre orientation distribution (FOD) directly from high angular resolution diffusion-weighted data [3]. This technique has been shown to adequately estimate the FOD even in regions containing multiple fibre populations, which cannot be characterised by a single diffusion tensor.

The aims of this study are firstly to investigate the limitations of the tensor-based tractography for the delineation of the corticospinal tracts in healthy controls, and secondly, to compare the tensor-based tractography results to those obtained using our CSD-based tractography method. To illustrate the consequences of using each of these techniques in the presence of pathology, we applied both tractography techniques to the diffusion data sets of three patients with lesions in the motor cortex, who also underwent motor functional MRI (fMRI) assessment. Two different algorithms were investigated: the most common currently available algorithm, based on the diffusion tensor model and the streamlines algorithm [4]; and our novel methodology, based on CSD [3] and the probabilistic streamlines algorithm [5].

Methods: The diffusion-weighted data were acquired using a 60 DW direction scheme on a 3T Siemens Trio system, using a twice-refocused spin-echo EPI sequence ($b = 3000 \text{ s/mm}^2$, TE = 110 ms, 60 contiguous slices, voxel size $2.5 \times 2.5 \times 2.5 \text{ mm}$). A $b=0$ volume was acquired first, and repeated after every 10 DW volumes. These were analysed using both the DTI and CSD methods. In both cases, data from twenty healthy controls were analysed by initiating tracking from thousands of points placed randomly within a seed region of interest (ROI) centred on the medulla oblongata; tracks were discarded if they did not reach a large inclusion ROI encompassing the motor cortex.

To map a target region of motor function in each of the three clinical cases, finger tapping fMRI studies were performed. The diffusion-weighted data set for each patient was analysed by both tractography methods with a seed ROI centred on the medulla oblongata, and discarded if they did not reach the target region in the motor cortex identified by the fMRI task activation.

Results & Discussion: Fibre tracks were consistently observed to extend throughout the entire motor cortex in all control subjects using the probabilistic streamlines + CSD methodology. Conversely, tracking using the tensor-based method routinely failed to delineate more than a narrow subset of the known extent of the motor tracts (figure 1). Failure of the tensor-based method in this region is most likely due to the high proportion of crossing fibres in the region of the centrum semiovale. These findings indicate that tensor-based tractography results may be unreliable in clinical practice, given the widespread distribution of voxels in the brain that contain crossing fibres.

The importance of providing accurate tractography information for the purpose neurosurgical decision making was illustrated by the tractography results of the clinical patients. In all cases, the tensor-based method failed to produce tracks that extended to the region of active cortex, whereas the CSD method in each case provided meaningful information regarding the motor tracts associated with the fMRI motor activation, as demonstrated in case 1, (figure 2).

Although further work is necessary to corroborate these findings, the CSD tractography method provides highly promising results that suggest future clinical applications may now be feasible.

References: [1] Pierpaoli et al. (2001) NeuroImage 13:1174-85. [2] Kinoshita (2005) NeuroImage 25:424-9. [3] Tournier et al. (2007) Neuroimage 35: 1459-72. [4] Mori (1999) Ann. Neurol. 45:265-9. [5] Behrens et al. (2003) MRM 50:1077-88.

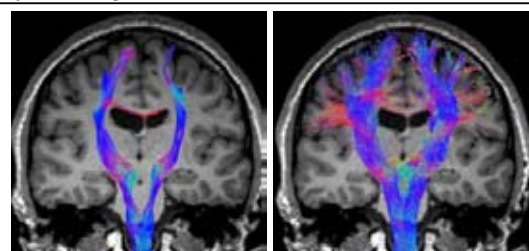


Figure 1: Coronal T1 weighted images of a healthy control subject with tractography results overlaid. Note the tensor-based method (left) produced tracks that were limited to a narrow region within the motor cortex, whilst the CSD method consistently produced the fibre tracks (right) extending throughout the entire motor cortex.

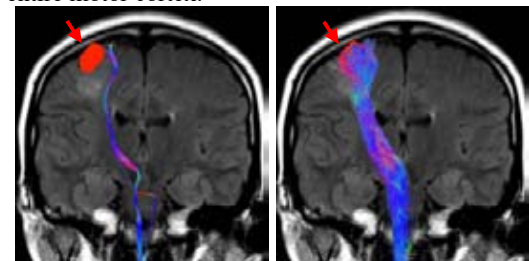


Figure 2: Coronal T2 FLAIR images of case 1, through the region of right-sided cortical fMRI activation (arrow) with tractography results overlaid. Note the tracks produced using the tensor-based method (left) did not project into the region associated with motor activation in the motor cortex. In contrast the CSD tractography results (right), demonstrated the corticospinal tracts extending from the brain stem to the region of fMRI activation.

S. Farquharson¹, J-D. Tournier^{1,2}, G. Fabbini³, G. Jackson^{1,2}, A. Connelly^{1,2}

1) Brain Research Institute, Melbourne, Victoria, Australia; 2) Department of Medicine, University of Melbourne, Victoria, Australia;

3) Department of Neurosurgery, Austin Health, Melbourne, Victoria, Australia

Proffered Paper and Poster Award Recipients

Clinical Focus Paper Award Recipients



1st Place

*BrainSUITE® -
Intra-Operative
Magnetic
Resonance
Imaging,*

Krista Runge, B.S., R.T., (R)(MR)
The University of Texas, M.D. Anderson
Cancer Center, Houston, Texas, USA



2nd Place

*Report of 2 Patients
with Findings of
Intracranial Ferrous
Metal Fragments
Post-Craniotomy and
Subsequent Intra-spinal
Migration*

Carolyn Phillips, R.T.,(R)(CT)(MR)
St. Jude Children's Hospital
Memphis, Tennessee, USA



3rd Place

*Using TWIST
MRA at 3T as a
Timing Bolus for
High Resolution
Contrast
Enhanced MR
Angiography*

Thomas Huerta, B.S., R.T.,(R)(MR)
University of Virginia Health System
Charlottesville, Virginia, USA

Research Focus Paper Award Recipients



1st Place

*Variations of Phasic
Temporal Flow Profiles
of the Right Coronary
Artery Blood Flow on
PC-MRI During Different
Respiratory Suspension
Techniques*

John Totman, DCR (R), M.Sc.
Brain and Body Centre
University of Nottingham
Kings College London
St. Thomas School of Medicine, Nottingham, UK



2nd Place

*Can Spatially
Under Sampled
PC-MRI Provide
Quantitative
Results?*

John Totman, DCR (R), M.Sc.
Brain and Body Centre
University of Nottingham
Kings College London
St. Thomas School of Medicine, Nottingham, UK



3rd Place

*Magnetic Resonance
Imaging and
Optical Coherence
Tomography
Obtained in Patients
with Acute Optic
Neuritis*

Helle Juhl Simonsen, MRT
Functional Imaging Unit
Glostrup Hospital
University of Glostrup, Denmark

Clinical Focus Poster Award Recipients



1st Place

*The Role of MRI in
the Assessment of
Aortic Coarctation*

Robyn Riley, R.T.
The Prince Charles Hospital
Brisbane, Australia



2nd Place

*Fat and Water
Separation Using
Variable Projection
(VARPRO) for
Fatty Infiltration in
the Myocardium*

Charles Fasanati, R.T., (R)(MR)
Northwestern Memorial Hospital
Chicago, Illinois, USA



3rd Place

*MR Angiography
of the Renal
Arteries using
SSFP Dixon
Method*

Hina Jaggi, M.S., R.T., (R)(MR)
Department of Radiology
New York University
New York, New York, USA.

Research Focus Poster Award Recipients



1st Place

*Magnetic
Resonance
Elastography of
the Breast*

Caron Murray, M.R.T.
(MR), Imaging Research
Sunnybrook Health Sciences Centre
Toronto, Ontario, Canada



2nd Place

*Comparing
Symptoms Induced
by Exposure to
1.5T vs. 3.0T Static
Magnetic Fields:
A Technologist's
Perspective*

Linh Tran, M.R.T., (NM) (MR)
Imaging Research
Sunnybrook Health Sciences Centre
Toronto, Ontario, Canada



3rd Place

*Multi-Contrast
Delayed
Enhancement:
Accuracy and
Application*

Rhonda Walcarius, B.Sc., R.T., (R)(MR)
Imaging Research
Sunnybrook Health Sciences Centre
Toronto, Ontario, Canada



Education Committee Report

Sonja K Robb-Belville B.S., R.T., (R)(MR)
Chair, 2009 Education Committee

"Remember it is not too soon to be thinking about submissions for the 19th SMRT Annual Meeting in Stockholm, Sweden on 1 and 2 May 2010."

The 18th SMRT Annual Meeting, Evolution of MR Innovation, held on the island of O'ahu in beautiful Honolulu, Hawai'i was a terrific success. This event was the culmination of the dedication and service of countless SMRT members who volunteer their valuable time and energy to the achievements of this organization. This year's Abstract Review Panel evaluated a record setting of 80 submissions, from 16 different countries, in the clinical and research focuses to determine the Proffered Paper Award recipients and the Poster Award recipients. This international group of volunteers strived to ensure that the SMRT stayed focused on its mission to provide high-quality, pertinent education to MR technologists and radiographers around the globe.

The Abstract Review Panel forwarded the top 8 abstracts for oral presentation to the President's Award Selection Panel. This panel was comprised of **Wendy Strugnell**, President; **Pamela Vincent**, President-Elect; **Carolyn Bonaceto**, Immediate Past-President; and **Sonja Robb-Belville**, Education Committee Chair. They selected the abstract titled "MRI Fibre Tracking of the Corticospinal Tracts for Neurosurgery: Diffusion Tensor Imaging (DTI) vs. Constrained Spherical Deconvolution (CSD)" by **Shawna Farquharson**, B.Sc., M.Sc. of Australia as the top overall abstract, earning it the distinguished President's Award.

Our meeting began Friday evening with the Poster Walking Tour and Reception at the Hawai'i Convention Center. This multi-purpose event provides the educational experience of the poster presentations with the opportunity to socialize and network. Attendees enjoyed refreshments while

catching up with old friends and making new ones, often connecting faces with names that they have seen on the MR list-serve. During the Poster Walking Tour, poster authors were available by their submissions to discuss their work with the tour's attendees. The award receiving poster authors were introduced by **Sonja Robb-Belville**, Education Committee Chair, and the presenters provided a brief talk on their poster and answered questions from the audience.

Robyn Riley, 1st place Clinical Award recipient of Australia, began the presentations with a talk about her submission "The Role of MRI in the Assessment of Aortic Coarctation." Ms. Riley's poster demonstrated MR to be the modality of choice in pre-operative, post-operative, and lifelong clinical surveillance of patients with aortic coarctation, greatly reducing the ionizing radiation dose that these patients receive. **Charles Fasanati**, 2nd place Clinical Award recipient of the US, followed with his talk on Fat and Water Separation Using Variable Projection (VARPRO) for Fatty Infiltration in the Myocardium. The VAPRO protocol described by Mr. Fasanati provides a means to overcome non-uniform fat suppression and display microscopic areas of fatty infiltration of the myocardium. **Hina Jaggi**, 3rd place Clinical Award recipient of the US, spoke on MR Angiography of Renal Arteries Using SSFP Dixon Method. The SSFP method employed by Ms. Jaggi's group shows multiple advantages to this non-contrast enhanced technique, including short breath-hold imaging and excellent fat suppression. **Caron Murray**, 1st place Research Award recipient of Canada,

presented a poster entitled MR Elastography of the Breast. This technique demonstrates the potential for improved sensitivity and specificity over ultrasound in determining if lesions are benign or malignant to augment dynamic contrast enhanced (DCE) MR imaging of the breast. **Linh Tran** also of Canada, received the 2nd place Research Award for her poster entitled Comparing Symptoms Induced by Exposure to 1.5T vs. 3.0T Static Magnetic Fields: A Technologist's Perspective. Linh's group determined that there is a significant difference in the symptoms of dizziness, sleepiness, and headaches among these workers. Rhonda Walcarius from Canada, concluded the Poster Tour with her presentation on "Multi-contrast Delayed Enhancement: Accuracy and Applications." This technique provides improved infarct visualization, particularly in the papillary muscles.

The Saturday session of the meeting titled Origins of MR Innovation included Proffered Paper presentations from the President's Award abstract author, **Shawna Farquharson** and the authors of the 1st, 2nd, & 3rd place Research Abstracts, and a How to Write an Abstract talk by David Stanley. The 1st and 2nd place Research Abstracts, both submitted by **John Totman** of the United Kingdom, were Variations of Phasic Temporal Flow Profiles of the Right Coronary Artery Blood Flow on PC-MRI During Different Respiratory Suspension Techniques and Can Spatially Under Sampled PC-MRI Provide Quantitative Results? The 3rd place Research Abstract, Magnetic Resonance Imaging and Optical Coherence Tomography Obtained in Patients with Acute Optic Neuritis was presented by **Helle J. Simonsen** of Denmark. **David Stanley** was

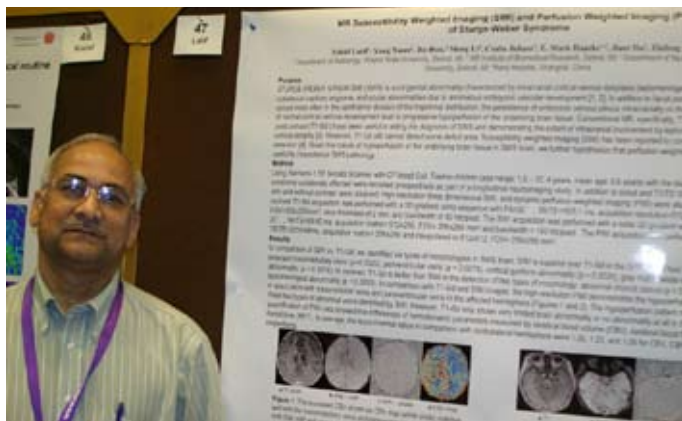
pleased to announce that the long-awaited Abstract Mentorship Program will be implemented this year. More information on this program will be available soon via the SMRT website www.ismrm.org/smart.

Applications of MR Innovations was the title for the Proffered Paper session for the 1st, 2nd, and 3rd place clinical focus abstract submissions presented on Sunday. **Krista Runge** of the US, 1st place Clinical Abstract, told us about the use of BrainSUITE® - Intra-Operative Magnetic Resonance Imaging at

her facility. **Carolyn Phillips** of the US, 2nd place Clinical Abstract, spoke about Report of Two Patients with Findings of Intracranial Ferrous Metal Fragments Post-Craniotomy and Subsequent Intra-spinal Migration. The Proffered Paper presentations were wrapped up by **Thomas Huerta** also of the US, who spoke about Using TWIST MRA at 3T as a Timing Bolus for High Resolution Contrast Enhanced MR Angiography.

Congratulations again to all the award recipients! A final thank you to each of

the authors and reviewers, your hard work demonstrates your commitment to elevating the profession of MR through the mission of the SMRT! Remember it is not too soon to be thinking about submissions for the 19th SMRT Annual Meeting in Stockholm, Sweden on 1 and 2 May 2010. Also, don't forget to check the SMRT website for more information on the forthcoming Abstract Mentorship Program. [S]



Zahid Latif, R.T.(R)(MR)(CT) awaits questions from the audience about his poster.



Linh Tran, M.R.T., (NM)(MR), explains her poster during the walking tour.



The Poster Walking Tour continues to be a popular educational and networking event at the Annual Meeting.

Section for Magnetic Resonance Technologists

NEW Member Benefit: Electronic Home Studies



Electronic Versions of New Home Studies

The SMRT introduces a new way for its members to earn Category A CE Credits fast!
Earn your **Category A Continuing Education Credits** on-line at <http://www.ismrm.org/smart/ehs>.

The SMRT now has electronic versions of their *Educational Seminars* home studies available at the SMRT website. These electronic home studies will be available ONLY on-line and ONLY to SMRT members. At the SMRT website you can read the articles and take the quiz on-line!

These electronic home studies are being made available in addition to the quarterly issues that are mailed to SMRT members.

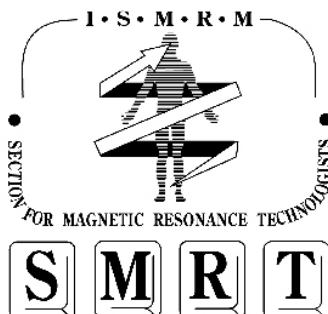
The “*Use of Contrast Agents in MR Imaging of the Spine*” is the second SMRT electronic home study available now on-line. Simply read the article, answer the short quiz and earn **1.0 (one) Category A CE credit**.

Home Study Quiz On-line for Future Hardcopy Issues

All future SMRT Educational Seminars Home Studies will now have the quiz and answer form on line at <http://www.ismrm.org/smart/ehs>. Pending reprint permissions, we plan to post the actual article(s) from the home study on-line as well. The quiz and answer forms are now on-line for the SMRT *Educational Seminars* Home Studies, Volume 12, Number 2. Read the home study, take the quiz, and earn Category A CE credits – Simple!! Your certificate of completion will be e-mailed to you.



Paul McElvogue, R.T., (R)(MR)
SMRT Publications Chair
paulmri19@aol.com



Anne Marie Sawyer, B.S., R.T., (R)(MR)
Educational Seminars Editor
amsawyer@stanford.edu



Business Meeting Report

Vera Miller, B.S., R.T., (R)(MR)
SMRT Secretary

"It would be remiss of us not to acknowledge the tremendous support we receive from the ISMRM Central Office. They make the day to day running of the SMRT possible."

The SMRT Annual Business Meeting was held on Saturday morning 18 April 2009, in Honolulu, Hawai'i during the ISMRM conference. **Wendy Strugnell** called the meeting to order and welcomed the audience. Acknowledgements were made to the past presidents in attendance. Wendy thanked the Executive Committee as well as outgoing Past-president, **Carolyn Bonaceto** for their efforts during the year in service to the society. Congratulations to all who have new positions within the board:

Julie Lowe B.S., R.T.,(R)(MR) - incoming President-elect

Maryann Blaine, MAT, R.T.,(R)(MR) - Education Chair

Ashok Saraswat, M.S., Bed, R.T.,(R)(MR) - Chapter Chair

Jane Francis, DCR,(R), DNM - Bylaws Chair

Stephen Darty, B.S., R.T., (N)(MR) - Membership Chair

Michael Macilquham, B.App.Sc., MHSc (MRI) - Program Chair

Paul McElvogue, R.T., (MR) - Publications Chair

Carol Lee, B.S., R.T., (R)(CT)(MR) - Regional Chair

Wendy Strugnell, B.App.Sc., (MIT) - Awards and Nominations Chair

Charles Stanley, R.T., (R)(CT)(MR) and Gina Greenwood, MBA, R.T., (R)(MR) - External Relations Co-chairs

Ben Kennedy, B.App.Sc., (MIT), MMRT - Executive Member

Sonja Robb-Belville, B.S., R.T.,(R)(MR) - Student Scope Subcommittee

Joseph Castillo, B.Sc., M.Sc. - Global Relations Chair

Five Policy Board members are rolling off the board and five new Policy Board members are ready to take their place. Policy Board terms are for three years and many duties are required of these individuals. We appreciate the hard work of Dave Stanley,

SMRT Policy Board Members, Officers, and Editors



Back Row, Left to Right: Sonja Robb-Belville, Paul McElvogue, Ben Kennedy, Julie Lowe, Anne Sawyer, Titti Owman, Joseph Castillo, Julie Strandt-Peay, David Stanley, Janice Fairhurst, Maryann Blaine, Heidi Berns, Muriel Cockburn.
Front Row: Stephen Darty, Michael Macilquham, Gina Greenwood, Carol Lee, Anna Kirilova, Nancy Talbot, Jane Francis, Colleen Hammond, Pamela Vincent, Steve Shannon (behind Pamela Vincent), Wendy Strugnell, Filip DeRidder, Vera Miller, Carolyn Bonaceto, Randy Earnest.

B.S., R.T.,(R)(MR), Anna Kirilova, B.Sc., R.T.,(R)(MR), Caron Murray, MRT, (R) AC, (CT)(MR), Nancy Talbot, MRT, MR (R), and Randy Ernest, B.S., R.T.,(R)(MR). In-coming to the Board are Carol Lee, B.S., R.T., (R)(CT)(MR), Colleen Hammond, R.T., (R)(CT)(MR), Muriel Cockburn, D.C.R., B.Sc.Hons, Titti Owman,R.T, and Michael Macilquham,B. App.Sc., MHSc (MRI). Congratulations on your elections and we look forward to working with you in the upcoming years.

It would be remiss of us not to acknowledge the tremendous support we receive from the ISMRM Central Office. They make the day to day running of the SMRT possible. A very special thanks goes to Jennifer Olson for keeping us all organized and helping in every way. We welcome the support of the new SMRT Coordinator, Linda O-Brown.

A new format for the Business Meeting was instituted this year. The committee reports were presented power-point style by Wendy instead of the Chairs coming up to the podium. This allowed more time to focus on discussion and was a clear visual.

Treasurer, **Steve Shannon**, gave an update of the current financial situation. Our current assets are \$44,797, which puts us in the black. In the current economic climate we will need to work diligently to maintain a positive balance. The SMRT leadership strives to cut costs without cutting membership benefits. Look for us to "Go Green" at every opportunity. While the donations to the annual meeting were below budget, we continue to receive the Invivo support toward the "Educational Seminars" Home Study program. The donation is very valuable and we appreciate Invivo for their continued assistance.

The SMRT Annual Meeting attendance was 271! Honolulu was a wonderful locale and the meeting a tremendous success. The Program Committee did an excellent job with the planning and execution.

Regional SMRT meetings have been an area of growth for the society. When members have limited funds for meeting and travel, the local chapters and regionals benefit. We will continue to provide support for regional meetings through the Central Office and Regionals Committee. Look for announcements of seminars close to you.

External Relations is a very important function of the SMRT. **Gina Greenwood** and **Charles Stanley** have provided the SMRT voice in many venues this year. Please remember to look for the column in Signals for recent activities and updates from Gina and Charles. Gina was with us in Honolulu and gave a brief overview of the year. The Alliance is focused on passage of the CARE bill and enforcing minimum requirements for healthcare professionals. The recently passed MIMPP bill, mandates accreditation of imaging facilities receiving Medicare reimbursement. While the accrediting bodies have not yet been identified, it is likely to be ACR and ICAM. The deadline for accreditation is 2012. The SMRT is advocating on your behalf toward passage of the CARE bill. This initiative embraces our core values and will help maintain standards for technologist education and accreditation. We encourage technologists to write, call, and e-mail your local representatives. The more voices in support, the better our chances!

Change is good! As the Program and Education committees under the leadership of **Ben Kennedy** and **Sony Robb-Belville** demonstrated. Using the feedback from prior meetings and instituting a few structural and organizational changes, they put together an awesome 2009 SMRT Annual Meeting. 14.5 CEU credits were offered and approved by the SMRT, AID, NZIMRT, and CPD organizations.

Caron Murray moderated the ISMRM/SMRT Joint Forum this year. "How to Perform a Multi-Site Neuro Imaging Study" was the

topic. It was a wonderful collaboration between the ISMRM and SMRT. This forum occurs each annual meeting and showcases the talents of technologists, radiologists, and researchers. Your 2-day SMRT registration entitles you to admission to this session held on Monday afternoon, historically. Please watch for the next offering in Stockholm 2010!

The Education Committee under the able leadership of **Sony Robb-Belville** has been very busy this year. Below is a short list of the many endeavors of members of this committee. Each year the committee works to provide quality educational offerings to the members. If you have any interest in participating, we'd love to have you! Contact **Maryann Blaine** the in-coming Chair, she'll surely have something for you to do! Amongst the duties last year were:

- assist with annual meeting program and organization
- facilitate ISMRM sessions during this annual meeting (Hawaii)
- SMRT/ASRT joint forum
- abstract review and scoring
- record the number of abstracts and posters
- revamp of abstract process
- abstract mentor program under development
- student scopes review and scoring

The Bylaws Committee with **Maryann Blaine** as Chair undertook a major revision of Standard Operating Procedures (SOPs) this year. We appreciate the hard work the Committee performed. As the society changes, the SOPs must change also. The documents are reviewed and revised as needed, annually.

Our Membership Committee is a vital piece of the SMRT. With **Filip DeRidder** as the Committee Chair, new initiatives to raise

awareness took place both in the US and across the world. We currently have 2,605 members. Unfortunately, that's a small portion of MR technologists working in the world! A seminar is planned for February 2010, in Los Angeles, California, USA that will function as a "membership drive." We need to get the word out about the benefits of belonging to the SMRT. Also planned in Europe, a joint collaborative meeting with the Euro-med Congress for Radiographers to be held in Cascais, Portugal, 5-8 November 2009.

Our Regional Chair, **Janice Fairhurst** announced three successful Regionals during 2009. Both Seattle and Boston, USA, and of course the widely popular Presidents' Regional in Australia.

Ashok Saraswat, Chapter Chair reported ten active Chapters in the US, one in Australia/New Zealand and one in Benelux (Belgium, Netherlands, Luxembourg).

Publications Chair, **Paul McElvogue** and Educational Seminars Home Study Editor, **Anne Sawyer** are responsible for the four home studies this year. The shining



Wendy Strugnell passing the gavel to SMRT President, Pamela Vincent

accomplishment from this committee is the introduction of the electronic home studies and quiz on-line! Thanks to Anne and the Central Office for their diligent work to make this a reality. MR technologists and radiographers around the world now can read the home studies and take the test without a trip to the post office!

Signals Editor, **Julie Strandt-Peay** worked diligently to put Signals on-line. This important publication brings members up-to-date with the happenings of your society and runs many informative pieces. Look on the website for all these exciting offerings!


Wendy Strugnell completed her term as President during the Business Meeting

and passed the gavel to **Pamela Vincent**. Wendy has done an amazing job this year and we appreciate her dedication and hard work. She attributed her success to a strong support system consisting of current and former SMRT officials.

Pamela Vincent addressed the membership in attendance for the first time as acting President. Her first official duty was to present a commemorative plaque to Wendy. She then encouraged attendees to take an active role in committees or even to express interest in Policy Board nomination. Please speak, write or e-mail anyone at the SMRT. They would be glad to help you!

Pamela asked the audience for any questions or new business. **Maureen Ainslie** responded, "Thanks for the new format and new information, it was well done."

A motion was made to adjourn by **Cindy Hipps** and seconded by **Michael MacLiquihan**.

We hope to see you all in Stockholm 2010! We want your input. Attend a meeting, e-mail the Policy Board members, VOTE! 

ISMRR Staff



Top row, left to right: Allison Barbour, Electronic Communications Coordinator; Sally Moran, Director of Electronic Communications; Jennifer Olson, Associate Executive Director; Linda O-Brown, SMRT Coordinator; Mariam Barzin, Director of Finance; Kristina King, Director of Membership; Melisa Martinez, Meetings Coordinator; Liz Tharpe, Membership and Study Group Coordinator. Bottom row left to right: Jerusha Rich, Registrar; Stephanie Haaf, Education Coordinator; Kailin Mardones, Accounting Coordinator; Roberta Kravitz, Executive Director; Mary Day, Office Manager; Mary Keydash, Director of Publications; Robert Goldstein, Director of Education; Sandra Daudlin, Director of Meetings.



SMRT/ISMRM Joint Forum Report

Caron Murray, M.R.T., (R)AC, (CT)(MR)
Co-Chair, Joint Forum Committee

"The goal of the joint SMRT/ISMRM program is to enable the ISMRM and SMRT members to benefit from the unique expertise and experiences of each other."

How to Perform a Multi-Site Neuro-Imaging Study

The 2009 ISMRM/SMRT Joint forum was held on Monday 20 April, 2009 in Honolulu, Hawai'i, USA. The goal of the joint SMRT/ISMRM program is to enable the ISMRM and SMRT members to benefit from the unique expertise and experiences of each other, scientists, physicians and technologists/radiographers. The forum "How to perform a Multi-site Neuro-imaging study" was well attended by both SMRT and ISMRM members. The forum covered the design and implementation of multi-center MR neuro-imaging studies and the importance of scanner QA, parameter selection and vendor compatibility, as well as the lessons learned from multi-center structural, diffusion tensor, functional and perfusion studies. The Forum was divided into six presentations which included information on performing DTI, ASL, functional and structural studies as well as the foundations for multi-centre

neuroimaging studies and the technologist's perspective.

Dr. Gary Glover from the Department of Radiology at Stanford University, California, USA began the session with "Foundations for Multi-center Neuroimaging Studies". He discussed the increasing popularity of multi-center studies (MC) because of the need for large scale enrolment and diversity in the study population and the desire to reduce the total duration of the imaging phase of the study itself. As multi-center MRI studies become increasingly implemented, further advances in minimizing site effects will be developed, such as vendor-available standardized pulse sequences and analysis software.

Dr. Matt Bernstein from the Departments of Radiology, Physiology and Biomedical Engineering at the Mayo Clinic in Rochester, Minnesota discussed "How to do a Structural Multi-Center Neuro-imaging Study".

He presented the ADNI (Alzheimer's disease Neuroimaging Initiative) study which is an observational study acquiring serial data from approximately 60 sites in North America. Approximately 5500 MRI scans will be completed by 2010. There is no absolute correct protocol design but rather range of protocols that meet the requirements.

Dr. Carlo Pierpaoli of the National Institutes of Health in Bethesda, Maryland, USA spoke on "How to do a DTI Multi-center Neuro-imaging Study." Multi-center clinical research studies including a Diffusion Tensor Imaging component are becoming increasingly common. There are examples of large multi-center DTI initiative which have put emphasis on protocol standardization, for examples go to: <http://www.nbirn.net>, www.NIH-PediatricMRI.org, <http://www.na-mic.org>.

Strategies which have already proven to be successful include: (1) the need of suit-



From the left to right: Matthew Bernstein, Ph.D. Caron Murray, M.R.T., Maureen Ainslie, M.S., R.T., Byron A. Mueller, Ph.D., Carlo Pierpaoli, M.D., Ph.D., Xavier G. Golay, Ph.D., Gary H. Glover, Ph.D., Douglas Noll, Ph.D.

able phantoms (2) experimental design, (3) procedures to ensure quality control across all sites and within sites, (4) robust and standardized data processing and centralized processing, (5) importing data with minimal user intervention, distortion correction, registration to structural templates, and (6) appropriate tools for data analysis, identification of confounds and artefacts, statistical inferences for the population and the creation of population specific atlases.

Dr. Bryon Mueller from the Department of Psychiatry of the University of Minnesota, in Minneapolis, Minnesota, USA described "How to do a Functional Multi-Center Neuro-imaging Study".

A multi-center fMRI study offers several advantages over a single center study, most notably the potential to increase the number of subjects enrolled, to increase the demographic diversity of the subject population(s), and to include significant numbers of subjects from rare subgroups within clinical populations. While offering many potential


advantages, multi-center fMRI studies also present multiple challenges. fMRI data is profoundly affected by experimental and methodological factors. Methods used to perform multi-center fMRI studies are in flux because neuroimaging is a developing science, but current research has produced good recommendations and resources that are now available to help those designing and executing such studies.

Dr. Xavier G. Golay from the Institute of Neurology at the National Hospital for Neurology and Neurosurgery in London, England discussed "How to do an Arterial Spin Labelling Multi-center Neuroimaging Study". Dr. Golay described the following two ASL studies. The QUASAR trial was developed to assess the reproducibility of quantitative CBF using ASL from which many parameters could be estimated within a single sequence, "QUASAR". The fBIRN perfusion study had a very different goal than the QUASAR trial. The aim was to assess the reliability and reproducibility of ASL measurement of perfu-

sion in a small sample of healthy individuals scanned on various MRI scanners at four different sites. The main logistical problem in that study was to fly the same volunteers from one site to another. Overall, results were very reproducible amongst sites.

Maureen Ainslie, M.S., R.T. (R) (MR) from the Duke Image Analysis Lab, Duke University, Durham, North Carolina described "How to do a multicenter neuroimaging study: a technologist's perspective".

MRI neuroimaging is being utilized in multicenter trials throughout the MR community and the successful model involves early involvement of MR professionals, site training, site feedback and site support by the sponsor and MR coordinating center. A well-planned, well- documented process that includes all key personnel is critical to success of a multicenter neuroimaging study.

Douglas C. Noll, Ph.D. was the Moderator for the Panel Discussion following the presentations. 



SMRT Members were treated with the "aloha spirit" by Polynesian dancers at the opening reception in Honolulu.





Call for Nominations and Awards

Wendy Strugnell, BAppSc(MIT)
SMRT, Past President

"Nominations should be submitted directly to me at wendystrugnell@internode.on.net or to Jennifer Olson at jennifer@ismrm.org."

Nominations for Policy Board and President Elect

On behalf of the Nominating Committee, I invite members of the SMRT to nominate individuals for membership of the Policy Board (five positions) and for President-Elect (one position). To be eligible for selection, the nominee must be a member in good standing of the SMRT. Nominees for President-Elect must also have served on the Policy Board. Policy Board positions are three-year terms which will take effect from the SMRT Annual Business Meeting to be held in May, 2010 in Stockholm, Sweden and will conclude at the 2013 Annual Business Meeting. The President-Elect will serve a three-year term as President-Elect, President and Past President, commencing May, 2010.

As both these positions demand a significant commitment, please consider the following information when considering an individual to nominate:

Policy Board

The Policy Board is responsible for ensuring that the SMRT achieves its stated purpose and objectives for creating SMRT policies, fundraising, and for managing SMRT funds. The development of future SMRT leaders and the maintenance and supervision of SMRT assets are also Policy Board responsibilities.

Election to the Policy Board is undoubtedly a great honor and represents peer-recognition of an individual's contribution and standing in the field. Serving your profession and being involved in shaping the future direction of our society is an extremely rewarding professional endeavor. However, Policy Board membership entails a serious responsibility

to participate actively in Policy Board activities and requires a significant time commitment. Nominees must be prepared to make this commitment for the next three years. It is also advantageous for Policy Board members to have the support of their employer as some commitments such as teleconferences may require flexibility in the workplace.

Generally, an individual who is elected to the Policy Board will have shown a commitment to SMRT activities – such as involvement in SMRT committees, organizing chapter or regional meetings, participating in Annual Meetings by way of proffered papers or as an invited speaker. They are also typically focused on the importance of education for MR technologists and radiographers.

President-Elect

Eligibility for this position requires the individual having already served on the Policy Board and therefore election to the role demands an even greater commitment to the SMRT. The President-Elect serves on the Executive Committee (as well as many other committees) and works closely with the current President and Past President. This structure ensures excellent continuity in the direction and leadership of the SMRT and also provides an opportunity for mentoring the role of President.

Qualities required by the nominee are an ability to communicate well, provide leadership of the organization, and to work effectively in a group. Election to the position represents the pinnacle of professional service and is an extremely rewarding endeavor. Nominees must be prepared to commit a large amount of time to the position.

Nominations for Awards

Each year the SMRT recognizes the achievements of those who have made significant contributions to the SMRT and to the MR community. As Chair of the Awards Committee, I invite members to submit nominations for the following awards:-

Crues-Kressel

for outstanding contributions to the education of MR technologists

Fellow of the Section

for significant and substantial contributions to the mission of the SMRT and contributions to the development of the Section


Distinguished Service

for outstanding contributions and level of effort and service to the Section

Honorary Member

in recognition of extraordinary achievement and an exceptional level of service and support for the Section and mission of the SMRT.

The Nomination Process:

Nominations should be submitted directly to me at wendystrugnell@internode.on.net or to Jennifer Olson at jennifer@ismrm.org. The Bylaws of the SMRT require that nominations be received by 1 September 2009. From the nominations submitted, the Nominating Committee will determine a list of eligible candidates to be placed on a ballot and presented to the membership. The Awards Committee will also present nominations for the Crues-Kressel Award to the membership for selection. (All other awards are voted on by the Policy Board.) Ballots will be mailed to all voting members by 15 October 2009. Returned ballots must be postmarked by 1 December 2009 and received in the ISMRM/SMRT office by 7 December 2009 to be eligible. 



Anne Marie Sawyer, B.S., R.T., (R)(MR)
Editor
SMRT Educational Seminars
Home Study Program

SMRT Educational Seminars Home Study Update

"Like it or not, mathematical equations play an important role in much of the new 'neuro' applications including Diffusion, Perfusion and BOLD imaging."

We are pleased to present the SMRT Educational Seminars, Volume 12, Number 2: "Neuro MRI: Principles and Protocols." This is the forty-fourth home study developed by the SMRT, exclusively for the SMRT members. For this issue, we have selected two articles that review the principles and scan protocols of MR imaging of the nervous system particularly the brain. The third and final article in this issue discusses the principles of diffusion-weighted imaging which continues to evolve and provide a more comprehensive look at physiology of the brain.

According to **Timothy P.L. Roberts, Ph.D.** and **David Mikulis, M.D.**, the first two articles in this home study "form a combined platform serving to illustrate the physical bases of image acquisition and contrast manipulation for MRI of the central nervous system (CNS) and the harnessing of these physical principles to form clinical imaging protocols, tailored to suit a range of clinical presentations." As we continue to gain experience in MR imaging providing more information about physiology and pathology, it is valuable to revisit the fundamental physics and principles of magnetic resonance imaging to re-evaluate the scan parameters and imaging (pulse) sequences that compromise our clinical scan protocols. In addition, as MR imaging continues to grow and develop so do the number and complexity of imaging sequences that challenge our knowledge and encourage on-going self-study and participation in formal, didactic educational symposia. Like it or not, mathematical equations play an important role in much of the new 'neuro' applications including

Diffusion, Perfusion and BOLD imaging. I am as always, in complete awe and admiration for the technologists and radiographers worldwide, who continue to reach for these challenges as a means to provide the optimum in health care for their patients.


Our third article by **Jeffrey J. Neil, M.D., Ph.D.** provides an in-depth review of diffusion imaging. It was over half a century ago the "effects of molecular diffusion on magnetic resonance signal" were first witnessed by **Dr. Erwin Hahn**. The evaluation and development continued by several key researchers through to 1990 when **Dr. Michael Moseley** and colleagues "demonstrated that tissue water displacements serve as a sensitive marker for acute stroke, setting the stage for the widespread clinical use of this method." The diffusion MR imaging technique has continued to evolve as the system hardware improves, allowing faster and more reliable image acquisition. The MR system manufacturers strive to keep up as

researchers continue to generate additional information from this rapid acquisition method delivering data that is proving valuable as a diagnostic tool for clinicians.

We would like to express our grateful appreciation to **Chesanie Beam** (Lincolnton, North Carolina, USA) and **Randy Earnest** (Sanford, Maine, USA) for writing the questions that compose the quiz required to obtain Category A continuing education credits.

We would like to express our grateful appreciation to **Christopher J. Roth, M.D.**, Professor of Radiology, Duke University School of Medicine, Durham, North Carolina, USA, for acting as our expert reviewer.

Thanks also to **Paul McElvogue**, SMRT Publications Chair, and in the Berkeley, California, USA Central Office of the ISMRM/SMRT, Jennifer Olson, Associate Executive Director, Mary Keydash, Publications Director, and the staff for their insight and long hours supporting these educational symposia.

We would especially like to thank **John Wilkie** and all of the people at Invivo Corporation who generously support our home studies program, the SMRT Educational Seminars. Their continuing investment advancing technologist's and radiographer's knowledge, brings quality continuing education to the SMRT membership worldwide. 

**SMRT
Educational Seminars
Volume 12
Number 2**

***Neuro MRI:
Principles and
Protocols***



Chapter Chat: SMRT Rocky Mountain Chapter Annual Meeting

Betsy Sestina, (R)(MR)(CT)(M)
Co-Chair

"We had a variety of sponsors attend as well, and with the tough economic climate we have experienced over the last year, we want to express our sincerest thanks for our continued sponsor support."

The Rocky Mountain Chapter held its annual meeting on Saturday 28 February 2009 in Denver, Colorado, USA, in the Molly Blank Conference Center located at National Jewish Health with over 65 attendees. Registration, coffee and breakfast got the day off to a good start, along with connecting with old friends and meeting new ones.

Dr. Bradley Bolster, Staff Scientist in MR R&D collaborations for Siemens Medical Solutions started the morning with a presentation on "New Techniques to Improve Image Quality." Dr. Bolster talked about the changing landscape of "Clinical field strength, paradigm shifts in imaging techniques" as well as new techniques for everyday imaging. Definitely tips the attendees can utilize.

Next on the agenda was **John Posh**, Chief Veterinary MRI Technologist for AnimalScan in Bethlehem, Pennsylvania, USA speaking on "Introduction to Paleoforensic Imaging." The audience was introduced to a basic understanding of the value advanced imaging can add, and to the evaluation of

human remains. Several neuro examples and body cases were discussed through the forensics' perspective. Additionally, mummy studies from South America, North America, and Egypt were used as case presentations. Very interesting images in both CT and MR were presented.

After a short morning break, **Stuart Clarkson**, GE Healthcare 3T Product

Manager spoke to us on the "Future Directions in MRI." Combining the need to push the envelope of MR research with more powerful systems, along with the necessity of easier advanced applications for all routine users, Stuart touched on GE's vision



The efforts of speakers Geoff West, left and Stuart Clarkson were appreciated by the attendees.

for the future. A variety of subjects including improved fMRI and DTI, high resolution 3DFSE imaging, an express patient table with integrated dual port coil connectors, improved breast imaging, elastography of the brain, and total knee replacement 3D rendering were presented. Stuart's discussion reminded us once again what a dynamic modality we work in every day.

John Posh, Senior Partner, MRI Safety Specialist returned to discuss his other field of expertise, MRI Safety. Although we are all very aware of the safety issues revolving in and around the MRI suite, attendees were reminded of the ACR four zone guidelines as well as the proper steps necessary to ensure compliance. Also, presented were examples of accidents that have happened in the past with discussion of the mechanisms involved

to help us learn to prevent similar incidents in the future. Dissection of the patient screening process was given through specific examples and challenging cases.

After a break for lunch we

returned to the conference room to hear **Geoff West**, President and Chief Medical Physicist of West Physics Consulting speak about "ACR MRI Accreditation Update-Recent and Forthcoming Changes." Despite being scheduled directly after lunch, attendees were very much awake and listening to a spirited presentation on how to get the process started and multiple myth busters. Geoff also gave us the agenda for the "new or changes" within the ACR MRI Accreditation program.

Carolyn (Candi) Roth, R.T.(R)(MR)(CT)(M)(CV) FSMRT, finished the day with two entertaining lectures. First, she discussed



Invited speakers John Posh, left and Candi Roth, center share a light moment with local vendor representative Dian Pfenning,

how to optimize our protocols explaining how hardware, voxel, sampling, contrast, and a variety of options influence SNR and CNR. Attendees also were able to view a variety of case studies to provide examples of the lecture discussion. Candi finished up with a great overview of Breast MR. Imaging possibilities and differences at 1.5T and 3.0T were described. Additionally, case studies with regards to implants, tissue expanders, specific protocols, lesion architecture, contrast agents and

spectroscopy were discussed.

We are very grateful to all of our speakers for participating in our seminar. All of them traveled from out of state to be with us. We had a variety of sponsors attend as well, and with the tough economic climate we have experienced over the last year, we want to express our sincerest thanks for our continued sponsor support. Without their support our meetings would not be possible. Thank you to all who attended and we look forward to seeing you again next year. 



Chapter Meeting Attendee Tracey Clay



Meeting attendees gather around the SMRT/ISMRM booth at the Hawai'i Convention Center in Honolulu.

Close to 300 technologists from around the world joined over 4,600 scientists and clinicians at the ISMRM 17th Scientific Meeting & Exhibition/SMRT 18th Annual Meeting in Honolulu, Hawai'i, USA, in April.

MRI Safety

MRI Examinations and Pessaries



Frank G. Shellock,
Ph.D., FACC, FACSM

Adjunct Clinical
Professor of Radiology
and Medicine
Keck School of
Medicine

Adjunct Professor
of Clinical Physical
Therapy
Division of
Biokinesiology and
Physical Therapy
School of Dentistry,
University of Southern
California

Director for MRI
Studies of Biomimetic
MicroElectronic Systems
National Science
Foundation,
Engineering Research
Center
University of Southern
California

Institute for Magnetic
Resonance Safety,
Education, and
Research
President, Shellock R &
D Services, Inc.

This article represents the views of its author only and does not reflect those of the International Society for Magnetic Resonance in Medicine and are not made with its authority or approval.

A pessary is a small medical device or form of pharmaceutical preparation that is inserted into the vagina or rectum and held in place by the pelvic floor musculature. In some instances, a pessary may contain metal to permit forming into a shape to facilitate proper retention. Typically, the pessary is a firm ring or similar structure that presses against the wall of the vagina and urethra to help decrease urinary leakage or other conditions. It is an effective nonsurgical means of managing a number of gynecologic problems. Indications for the pessary include pelvic support defects such as

uterine prolapse and vaginal prolapse, as well as stress urinary incontinence.

MRI Information

A wide variety of pessary styles exist, including those made entirely from nonmetallic, nonconducting materials (e.g., plastic, silicone, or latex) as well as those that have metallic components. Obviously, those pessaries made from nonmetallic, nonconducting materials pose no problems for patients undergoing MRI procedures.

However, pessaries that have

metallic components will cause substantial artifacts, as shown in Figure 1. To date, there are no reports of injuries or other issues related to performing MRI in patients with these devices.

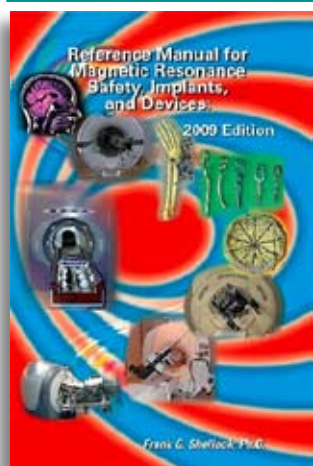


Figure 1

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Reference Manual for Magnetic Resonance Safety, Implants, and Devices: 2009 Edition



Editor's note:

The SMRT expresses appreciation for the 2009 Reference Manuals donated by Dr. Sherlock to all of the attendees at the recent SMRT Annual Meeting in Honolulu, Hawaii, USA.

The internationally acclaimed series, the Reference Manual for Magnetic Resonance Safety, Implants, and Devices: 2009 Edition (650 pages; 10 digit ISBN 0-9746410-5-7, 13-digit ISBN 978-0-9746410-5-8), includes updated guidelines and recommendations from the latest information in the peer-reviewed literature as well as documents developed by the International Society for Magnetic Resonance in Medicine (ISMRM), the American College of Radiology (ACR), the Food and Drug Administration (FDA), the National Electrical Manufacturers Association (NEMA), the International Electrotechnical Commission (IEC), the Medical Devices Agency (MDA), and the Institute for Magnetic Resonance, Safety, Education and Research (IMRSER). This textbook is a comprehensive yet concise information resource on MRI safety and patient management for healthcare professionals.

- Section I presents safety guidelines and recommendations.
- Section II contains the latest information for implants, devices, and materials tested for the MRI environment.
- An Appendix provides website information for more than 150 biomedical companies to facilitate finding additional company information for implants and devices.
- Updated information pertaining to MRI Contrast Agents and Nephrogenic Systemic Fibrosis (NSF) is included.
- "The List" now has information for more than 2,200 objects with over 900 implants tested at 3-Tesla.

To order books, DOWNLOAD AND FILL OUT FORM FROM www.MRIsafetybook.com, send a check or money order to: Biomedical Research Publishing Group, 7511 McConnell Ave., Los Angeles, CA 90045

ATTENTION:

To use Credit Card or for orders from outside the United States, please visit Amazon.com and search "Sherlock 2009"



SMRT 2010 Annual Meeting Announced

"MR Imaging Now and Into the Future"

Michael Macilquham,
B.App.Sc., M.H.Sc., (MRI), MSMRT
Chair, 2010 Program Committee

"The Program Committee is already working hard to deliver another high-quality MR educational symposium."

Join us in Stockholm, Sweden 1-2 May 2010, for the 19th SMRT Annual Meeting. The Program Committee is already working hard to deliver another high-quality MR educational symposium. Built upon the platform of the recent successful Hawai'i Meeting, the format will again include focus sessions on intermediate, niche and cutting-edge MR topics. Stockholm is one of the world's most beautiful cities, built where lakes meet the sea on fourteen islands, and with nine centuries of history and culture. It's striking modernity coexists happily with ancient customs and traditions that most visitors find unique and exotic.

Mark the date in your calendars to come and experience the allures of nature, urban sophistication and excellence in MR education. Visit www.stockholmtown.com

to learn more about Stockholm and keep abreast of program updates at www.ismrm.org/smrt. We look forward to seeing you in Sweden in May 2010! 



stockholm

sweden

Clinical Needs & Technological Solutions



SMRT 19th Annual Meeting
"MR Imaging Now and Into the Future"

SMRT Abstract Deadline: 6 January 2010

<http://www.ismrm.org/smrt>



Radiological Society of North America
95th Scientific Assembly and Annual Meeting
November 29–December 4, 2009
McCormick Place, Chicago

Associated Sciences Program at RSNA 2009

Registration Information

Registration is required to attend the Associated Sciences programs at RSNA 2009 (RSNA2009.RSNA.org).

Advance registration for the RSNA annual meeting ends November 6, 2009. Registration at McCormick Place begins at 12:00 PM on Saturday, November 28. RSNA shuttle bus service to McCormick Place will be available beginning at 11:00 AM on Saturday.

Registration fees at McCormick Place are \$100.00 higher than advance registration fees, so register now.

If you would like a copy of the published Associated Sciences Proceedings, please call 1-877-776-2227.

Sponsoring Organizations

- American Association of Medical Dosimetrists (AAMD)
- AHRA: The Association for Medical Imaging Management
- American Institute of Architects – Academy on Architecture for Health (AIA-AAH)
- Association for Radiologic & Imaging Nursing (ARIN)
- American Society of Radiologic Technologists (ASRT)
- Association of Educators in Imaging and Radiologic Sciences, Inc. (AEIRS)
- Association of Vascular and Interventional Radiographers (AVIR)
- Canadian Association of Medical Radiation Technologists (CAMRT)
- International Society of Radiographers and Radiological Technologists (ISRRT)
- Radiology Business Management Association (RBMA)
- Section for Magnetic Resonance Technologists (SMRT-ISMRM)
- Society of Nuclear Medicine – Technologists Section (SNM-TS)

REFRESHER COURSES

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(Each refresher course is approved for 1.5 *AMA PRA Category 1 Credits™* and Category A+ credit for technologists)

Monday, November 30, 2009

AS21 8:30 AM – 10:00 AM
**Where Is the Radiologist?
Radiology's Changing Dynamics:
Operations in Today's Economy
—Balancing Viability and the
Regulatory Minefield**
*Valerie R. Cronin, CNMT,
Moderator*
William A. Sarraile, JD
Paramjit S. Chopra, MD

AS22 10:30 AM – 12:00 PM
**Where Is the Radiologist?
Radiology's Changing Dynamics:
The Present and Future Medical/
Legal Issues That We Face**
Claudia A. Murray, Moderator
James P. Borgstede, MD
Patricia Kroken, FACMPE, CRA
Hilary Cohen

AS23 1:30 PM – 3:00 PM
**Compliance with the Supervision
Rules and Accreditation
Requirement: The Impact on
Reimbursement**
*Judy LeRose, RT(R), CRA,
Moderator*

**A) Physician Supervision
Requirements**
Melody W. Mulaik
**B) Accreditation Guidelines Set Forth in
MIPPA**
Thomas W. Greeson, JD
Barbara Rubel, MBA

AS24 3:30 PM – 5:00 PM
**Architecture That Makes a
Difference: Design Guidelines for
Tomorrow's Imaging Environment**
*Bill Rostenberg, FAIA, FACHA,
Moderator*
Morris A. Stein, FAIA, FACHA
Bill Rostenberg, FAIA, FACHA
Steven C. Horii, MD

Tuesday, December 1, 2009

AS31 8:30 AM – 10:00 AM
Molecular Imaging: Here to Stay
*Charles Stanley, RT(R)(CT)(MR),
Moderator*
A) New PET/CT Applications
Valerie R. Cronin, CNMT
B) Updates in PET/MR Imaging
David Gilmore, MS, CNMT,
NCT, RT(R)(N)

AS32 10:30 AM – 12:00 PM
**Managing Risk for Optimal
Patient Safety**
*Ellen Lipman, MS, RT(R)(MR),
Moderator*
**A) Enhancing Patient Safety: A Team
Approach**
Karen L. Green, RN, BSN,
MHA, CRN
**B) Risk Management in Radiology: An
Essential Part of Quality**
Robert P. George

AS33 1:30 PM – 3:00 PM
**Imaging through a Cross-cultural
Lens: A Global Perspective on
Values, Norms, Mystiques, and
Fears**
*Arlene M. Adler, MEd, RT(R),
FAERS, Moderator*
Cynthia Cowling, ACR, BSc, MEd
Lori Boyd, MRT(R), BA, MA, MEd

AS34 3:30 PM – 5:00 PM
Radiation Dose: Are We at Crisis?
*Karen J. Finnegan, MS, RT(R)(CV),
FAVIR, Moderator*
**A) Radiation Risk in Interventional
Radiology**
John F. Angle, MD
B) Low-Dose CT: Practical Applications
Narinder S. Paul, MD
C) Pediatric Dose
Donald P. Frush, MD

Wednesday, December 2, 2009

AS41 8:30 AM – 10:30 AM
**Why and How Far Health Care IT
is Behind Our Non-Health Care
IT Brethren: Continued from
RSNA 2008**
*Judy LeRose, RT(R), CRA,
Moderator*
Stuart Gardner

AS42 10:30 AM – 12:00 PM
Imaging in the Operating Room
*Charles Stanley, RT(R)(CT)(MR),
Moderator*

**A) Multimodality Imaging
in the Operating Room**
Ferenc A. Jolesz, MD
**B) Multidisciplinary Imaging
in the Operating Room**
Michael D. Dake, MD

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(Approved for 1.25 *AMA PRA
Category 1 Credits™* and
Category A+ credit for
technologists)

Monday, 1:30 PM – 2:45 PM
**MRI — Advanced
Technology**

*Douglas E. Pfeiffer, MS,
Moderator*
Moriel Shalom NessAiver,
PhD

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 Phone: +1 510 841 1899
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UPCOMING CALENDAR OF EVENTS

VISIT [HTTP://WWW.ISMRM.ORG/SMRT](http://www.ismrm.org/smrt) FOR CURRENT CALENDAR AND ACTIVITIES

**AUGUST 8
2009**

3RD ANNUAL KOVELESKI MEMORIAL SEMINAR
 Penn State Milton S. Hershey Medical Center, Hershey, Pennsylvania, USA

**SEPTEMBER 26
2009**

SOUTHEAST REGIONAL
 SMRT Atlanta Chapter, Saint Joseph's Hospital, Atlanta, Georgia, USA

**OCTOBER 17
2009**

NEW ENGLAND REGIONAL
 SMRT New England Chapter, Massachusetts College of Pharmacy and Health Sciences, Boston, Massachusetts, USA

**NOVEMBER 5-8
2009**

EURO-MED CONGRESS FOR RADIOGRAPHERS
 SMRT MRI Master Class, Miragem Hotel, Cascais, Portugal

**NOVEMBER 7
2009**

NORTHEAST REGIONAL
 SMRT NY/NJ Chapter, New York University Medical Center, New York, New York, USA

**NOVEMBER 7/8
2009**

**4TH ANNUAL AUSTRALIA/NEW ZEALAND
CHAPTER MEETING**
 Adelaide Convention Centre, Adelaide, Australia

**MARCH 13
2010**

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 Greenville Hospital System Patewood Medical Office Building, Greenville, South Carolina, USA

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**ISMRM Third
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Please visit www.ismrm.org for program additions and updates

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