

Winter 2010

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# COLLISIONS

Welcome to the Thunder Bay Regional Research Institute newsletter *Collisions*. We named it *Collisions* based on the theory in particle physics that the available energy to produce new matter is provided by the kinetic energy of the colliding particles. It also represents the positive collisions that occur between our scientists, physicians and clinical researchers to create positive changes for patients.



Andrée Robichaud, Dr. Neety Panu, Dr. Samuel Pichardo, Dr. Laura Curiel, Dr. John Rowlands, and Michael Power.

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Bringing

Discovery  
to Life

Thunder Bay Regional  
Research Institute

In partnership with  
Thunder Bay Regional Health Sciences Centre  
Affiliated with Lakehead University

## TBRI & TBRHSC partner with Sunnybrook to offer the world's first dual-site centre where surgery is performed with sound waves not scalpels

The Honourable Deb Matthews, Minister of Health and Long-term Care, participated in the recent opening of the very first dual-site, MRI-guided, high intensity focused ultrasound surgery Centre in Toronto and Thunder Bay. The surgery is performed without making a single surgical incision and without the use of needles.

Thunder Bay Regional Health Sciences Centre in partnership with Sunnybrook Health Sciences Centre launched the unique dual-site Centre where teams of clinicians and scientists will revolutionize surgery through non-invasive treatments for complex health concerns including cancers. The Centre's first clinical trial will apply the procedure to uterine fibroids.

"Congratulations to Sunnybrook and to their partners in Thunder Bay on yet another example of leadership in health care innovations. New

technologies like this will not only put Ontario on the world stage as an innovator, but also will improve the quality of health services for patients," says Deb Matthews, Minister of Health and Long-Term Care.

MRI-guided focused ultrasound therapy causes very little discomfort and requires very little recovery time. Early results from these trials show the treatment to be safe and effective with no serious side effects, using heat generated from high intensity ultrasound waves, focused to the target tissue and guided by MRI.

Dr. Kullervo Hynynen, director of imaging at Sunnybrook Research Institute, pioneered the technology. He is a co-investigator on the fibroid trials in Toronto led by Dr. Elizabeth David, an interventional radiologist at Sunnybrook. Dr. Laura Curiel leads the research at TBRI with clinical

leads Dr. Neety Panu, radiologist at Linda Buchan Centre at TBRHSC, and Dr. Andrew Siren, obstetrician and gynecologist at TBRHSC.

"These clinical trials are significant both in future treatment availability in Canada, and in informing our imminent work in the new year on non-invasive treatments for cancer patients," says Dr. Hynynen.

The researchers will expand their new therapy team through trials with clinicians at Sunnybrook's Odette Cancer Centre and at TBRHSC, where patients will be treated for bone metastases, recurrent breast tumours, head and neck tumours, and rectal tumours. The technology will be used in new research to increase the effectiveness of chemotherapy and to enhance the effects of radiation therapy.

## TBRHSC & TBRI awarded \$300,000 from Ontario Institute for Cancer Research

Dr. Tom Hudson, President and Scientific Director of the Ontario Institute for Cancer Research (OICR) announced that TBRHSC and TBRI are the joint-recipients of a four year pilot award in the amount of \$300,000. This award, given by OICR through its High Impact Clinical Trials Program, will help to develop translational research — commonly known as clinical trials research — at TBRHSC and TBRI. The award will support the infrastructure required to conduct translational research and help develop multi-disciplinary translational research teams.

"This marks a first of many milestones to come for our newly created Translational Research Program. Being the recipient of an OICR grant is a great opportunity that will serve our organizations well into the future as we pursue our own clinical trials with our own scientific teams," says

Tarja Heiskanen, the new Director of Translational Research for TBRI and TBRHSC.

Dr. Janet Dancey is Director, Clinical Translational Research NCIC Clinical Trials, Program Leader, High Impact Clinical Trials, Ontario Institute for Cancer Research. She says OICR is looking forward to working with the TBRHSC and TBRI.

"The TBRI and TBRHSC's growing strength in imaging research is exemplary and an obvious area of potential collaboration. It is very clear that TBRI has great potential as a translational research clinical trial site. They have assembled and plan to recruit an impressive group of researchers and patient participation is increasing. We are very pleased to offer TBRI and TBRHSC this award."

## TBRRRI hosts Dr. Jonathan Irish

Dr. Jonathan Irish was a keynote speaker at TBRRRI's 3rd Annual Board Retreat this fall. In keeping with this year's theme of Imaging Guided Interventions, Dr. Irish discussed the effects that emerging technology will have on patient survival and quality of life.

Dr. Irish is currently Chief of the Department of Surgical Oncology at the Princess Margaret Hospital/ University Health Network and Mt. Sinai Hospital, Toronto, and is Professor of Otolaryngology-Head and Neck Surgery at the University of Toronto.

He is cross-appointed to the Department of Surgery and to the Department of Speech Language Pathology at the University of Toronto. He completed the American Head and Neck Society Fellowship in Head and Neck Oncology in 1991 and joined the staff of the University Health Network in 1992.

In 2008, Dr Irish was appointed Provincial Head of the Surgical Oncology Program at Cancer Care Ontario.



Dr. Jonathan Irish



Dr. Alla Reznik

## Thunder Bay Researcher contributes to early detection of breast cancer

The technology used to find cancer is quickly and dramatically evolving. Dr. Alla Reznik says these fast paced changes in medical imaging improve the quality of life for patients and, for this reason, she loves her job.

Dr. Reznik is a scientist at Thunder Bay Regional Research Institute, an Assistant Professor of physics at Lakehead University, and a Canada Research Chair in Physics of Molecular Imaging. On first impression, her passion for research is apparent.

"What we do is something very human because we are ultimately contributing to improved rates of survival in people. I have had the opportunity to contribute to the quality of life of breast cancer patients and I would like to show others, including my students, how rewarding it is to work in health-related physics," she explains.

Born in Kiev, Ukraine, Dr. Reznik says she enjoyed learning about science from a young age. She earned her graduate degree in physics and later completed her PhD in Solid-State Physics at the Israel Institute of Technology; the Israeli equivalent of Massachusetts Institute of Technology (MIT). She was headhunted by GE Medical Systems in 1999, where she witnessed rapid changes in technology first-hand.

"Medical physics has come a long way and my contribution to the new technology is why I am where I am today," she says.

Dr. Reznik contributed to the development of a solid-state gamma camera dedicated to breast imaging. With improved resolution, sensitivity and specificity, the gamma camera is capable of detecting very small lesions in the breast. In combination with x-ray, PET/CT and MRI, the gamma camera can measure the metabolic activity of a tumour and detect cancer as early as possible. Her gamma camera contribution to breast imaging is now used at the Mayo Clinic and around the world.

"The science I am doing is not focused on finding a cure for cancer. It is focused on helping physicians find cancer earlier so they can develop a better, stronger treatment approach. We are trying to find it before it becomes metastatic (spreads) and this may be as close to a cure for many types of cancer as we can get."

## Dr. Michael Wood is introduced as new VP Research



Dr. Michael Wood

Michael Wood has come on board for a multi-faceted career in academic research and business. In his dual role as VP Research at TBRHSC and TBRI, he oversees all research activity with an emphasis on TBRSHC's three main pillars of service: care, research and academics. At TBRI, he is responsible

for the overall research vision and scientific direction of the Institute.

During 10 years at GE Healthcare, Wood championed a strategy for academic research collaborations for the Global MR Business and managed the product line of 1.5T MR systems globally. His interest in research began in 1982 with a study into the effects of motion on MR images as a graduate student at the University of Toronto, where he received a PhD and later, an MBA. He served as a Professor at the University of Toronto and for 10 years as Director of Research in the Department of Medical Imaging, where he nurtured a culture of collaborative research.

Wood's service to the medical imaging community includes roles in various professional organizations and committees. Currently, he is an Associate Editor of the Journal of Magnetic Resonance Imaging and also an Editorial Board Member of Investigative Radiology. He served on the Board of the Society for Magnetic Resonance Imaging (SMRI) and led activities, including the Annual Meeting Scientific Program. During a merger that created the International Society for Magnetic Resonance in Medicine (ISMRM), Wood served as Treasurer and was awarded the Certificate of Meritorious Service and made a Fellow of the Society.



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## FAST FACTS

### Did you know TBRI has...

- three core research themes: Advanced Detection, Imaging Guided Interventions, Probe Development & Biomarker Exploration
- 102 employees - nearly double the number of staff from 2009
- graduate students from Mexico, Ukraine, Germany and France
- a new Translational Research Program offering clinical trials
- educational tours that are available to high school and university students

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