The data indicate low sensitivity to thermal neutrons, while for fast neutrons, an increase in the SEU cross section with energy was observed. At high energies the results indicate that the cross section levels off.

Conclusions: The energy dependence of the SEU mechanism has been investigated for several SRAM memories. A 16 Mbit SRAM from the vendor Cypress was found to be the best candidate for a neutron detector. The characterization results provide a basis for estimating neutron fluence and dose from measurements with the SRAM detector.

Poster: Physics track: Professional and educational issues

PO-1011
The CREATE Medical Physics Research Training Network: training of new generation innovators in medical physics
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Purpose/Objective: Medical physics represents a bridge between physical sciences and medicine. Over the past century, physicists in the field have played a major role in transforming scientific discoveries into everyday clinical applications such as computed tomography (CT) and magnetic resonance imaging (MRI) or high-energy treatment of cancer. However, with the increasingly stringent requirements to regulate medical physics as a health profession, the role of physicists as scientists and innovators has been at serious risk of erosion, furthering the gap between scientific discovery and translation of discovery into medical applications. These challenges trigger the need for a new, revolutionized program that respects scientific rigor, attention for challenges and innovation and entrepreneurship.

Materials and Methods: A grant proposal was funded by the Collaborative REsearch and Training Experience program (CREATE) of the Natural Sciences and Engineering Research Council (NSERC) of Canada. This enabled the creation of the Medical Physics Research Training Network (MPRTN) around two successful medical physics graduate programs at McGill University and Université Laval. Both of these programs have longstanding expertise in the training of medical physicists and are accredited by the CAMPEP. Members of the network at the initial stage consist of medical device companies, government (National Research Council Canada, Canadian Nuclear Safety Commission) and academia (McGill, U. Laval, Havard). The MPRTN/CREATE program proposes a new curriculum embedded within 3 main themes: 1) radiation physics, 2) imaging & image processing and 3) radiation response and bio-modeling.

Results: The MPRTN was created in 2013 (mp rtn.com) and features (1) 4 new Ph.D. courses; (2) facilitated collaborations with basic sciences; (3) facilitated participation of medical devices industry in projects through participation of key-players and internships; (4) formal job-readiness training through workshops and the McGill ‘Skillsets’ program with involvement of guest faculty from academia, government and industry. MPRTN supported activities include 22 conferences; organization of 5 workshops and exchange travels made by four MPRTN trainees. Three patents were filed or issued, nine awards were won at conferences or best papers on research. Thirteen journal publications were accepted/published, 2 submitted; 102 conference abstracts. Collaborations with industry currently include 13 partners.

Conclusions: A medical physics research training network has been set up with the goal to expand the opportunities its graduates thereby harnessing job-readiness for industry, government and academia in addition to the conventional clinical professional role. One and a half year after inception, significant successes have been booked. However, the true challenge of the program is to demonstrate that with this training philosophy, continuous development and innovation is maintained as the core role of the clinical medical physicist.

Poster: Brachytherapy track: Breast

PO-1012
Comparative study of surgery with or without intraoperative multicatheter breast implant for PBI
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Purpose/Objective: The use of Partial Breast Irradiation (PBI) in early breast cancer has been increased its use and interest during the last years. Multi-catheter Intersitial Technique (MIT) offer high quality dosimetry parameters respect to others intraoperative procedures for PBI like balloon applicators, ELIOT or TARGIT. IMIMBI allows to see directly the tumor bed diminishing geographical error, optimizing the number of catheter necessary to encompass tumor bed, avoids a second invasive procedure, anticipates and shortens radiation therapy. However the risk to increase surgical complications limited it use during surgical resection. To analyze the differences between complications, duration of surgery and hospital stay, total time of loco-regional treatment and control of disease among the standard conservative management respect to conservative surgery with intraoperative implant for perioperative PBI.