CANSSI Workshop/Conference Proposal Form

Title of Workshop: Medical Physics and Statistics: Exploring Interfaces and Building Collaborations

Location of Workshop: University of Toronto

Date(s) of Workshop: April 4-5, 2017

Corresponding Organizer: W. J. Braun

Corresponding Organizer's Email: john.braun@ubc.ca

Corresponding Organizer's Affiliation: UBC

Other Organizers and Affiliations:
Patrick Brown (Cancer Care Ontario)
Andrew Jirasek (UBC - Okanagan campus)
Mary Thompson (University of Waterloo)

Workshop Objectives (< ½ page):
As disciplines, medical physics and statistics interface in many ways, but those interfaces only rarely correspond to collaborations between researchers and practitioners in the respective disciplines. This workshop aims to initiate activities along these interfaces and to help position Canada as a leader in medical physics research and practice informed by the latest developments in the appropriate statistical methodology. Medical physics involves the application of physics to problems in medicine and is an exceptionally broad interest area. We here narrow the interest to areas of medical physics as applied to disease, primarily (but not limited to) cancer. Within this realm, medical physics plays key roles in both the diagnosis and treatment of disease. The applications of physics to the relevant problems in both diagnostic and therapeutic arenas is complicated by the fact that the "model systems" are individual patients, each presenting a unique "case" in their care. Thus, single, analytical solutions to problems in medical physics are often not possible, and statistically-based approaches must be considered. Particularly relevant in next-generation practice of medical physics is the advent of Data Analytics, Big Data, and the associated analytic algorithms still under development. This meeting is designed to bring together researchers in medical physics and statistics, with the aim of establishing discipline-wide communications and scope for future collaborations.

Anticipated Impact of the Event on research in the statistical sciences in Canada:
By bringing medical physicists into contact with statisticians, it is anticipated that statistical scientists will be exposed to a host of new problems, both in terms of Big Data and more conventional forms. Synergies can be expected from the collaboration with medical physicists.

The Potential of the Event for Fostering Cross-Disciplinary collaboration:
The event explicitly encourages cross-disciplinary collaboration between medical physics and statistics.

List of speakers and affiliations:
Parminder Basran (BC Cancer Agency, Victoria)
Stephen Breen (Princess Margaret Hospital, Toronto)
Michelle Hilts (BC Cancer Agency, Southern Interior)

Anticipated audience (domain, career level, number and some indication of diversity):
We anticipate about 50 attendees, about half of whom will be trainees (graduate students or postdoctoral fellows). The remainder will be faculty and medical researchers at various career levels. We anticipate that about 30% of the attendees will be female.

Requested Amount from CANSSI: $5000

Plan for the use of CANSSI funds (e.g. travel funding for m graduate students at a rate of $n per student): 3 postdocs or grad students from outside Ontario: $1000 each, 4 postdocs or grad students from outside Toronto: $500 each,