McGILL UNIVERSITY - *MEDICAL PHYSICS UNIT ANNUAL REPORT* 2013

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I. Activity Summary

I.1. Background

The main areas of interest in medical physics at present are: (i) treatment of cancer by ionizing radiation (radiation oncology physics); (ii) diagnostic imaging with x rays, ultrasound and nuclear magnetic resonance (diagnostic radiology physics); (iii) diagnostic imaging with radionuclides (nuclear medicine physics); and (iv) the study of radiation hazards and radiation protection (health physics). In recent years medical physics has grown into a complex multidisciplinary science with involvements and affinities to biomedical engineering, health and life sciences, systems biology and biophysics.

Medical physics is also a rapidly expanding profession and job opportunities for graduates of medical physics programs remain promising locally, nationally and internationally. McGill's Medical Physics program has been in existence for over 35 years and the program is playing a world leading role in academic training of professionals in medical physics.

The accreditation of graduate and residency programs in medical physics is generally provided by the *Commission on Accreditation of Medical Physics Educational Programs* (CAMPEP) sponsored by four organizations: the *American Association of Physicists in Medicine* (AAPM); the *American College of Medical Physics* (ACMP); the *American College of Radiology* (ACR); and the *Canadian College of Physicists in Medicine* (CCPM).

The MPU graduate programs in medical physics were first accredited in 1993 for a period of 5 years and reaccredited in 1998, in 2003, 2008 and 2013 for an additional 5-year period. McGill was the third university in North America with such accreditation and between 1993 and 2004 it was the only Canadian university with such an accreditation.

Since 1997 the MPU also provides a residency program in radiation oncology physics. In this program graduates in medical physics receive a structured clinical-professional training in radiation oncology physics. The program received its first accreditation in 2000, and was re-accredited in 2005 and 2010 for an additional 5-year period. The current accreditation will expire on December 31, 2015. McGill is one of eight institutions in Canada and one of 53 in North America with this type of accreditation.

Information about the MPU, its clinical, research and academic mission can be found under www.mcgill.ca/medphys

I.2. Highlights

I.2.1. Research and Publications

Year 2013 was a relatively successful year in terms of output: 60 peer reviewed publications by MPU members; 98 abstracts; 29 invited presentations and 86 conference presentations. For complete listings, please consult Appendix IX-XII under: http://www.mcgill.ca/medphys/academic/annual-report-2013

Similarly, the overall grant and project support revenue for year 2013 amounted to ~1.1 $M. For a listing of grants, projects and contracts please consult Appendix XIII.

I.2.2. Teaching and learning

Eleven M.Sc. students in medical physics graduated during 2013. Five of these students became Ph.D. students (three at McGill, one at U de Montreal, one at Carleton University), four became clinical medical physics resident and two took up positions as clinical medical physicists at Hopital Maissonneuve Rosemont. One Ph.D. student (Eunah Chung) graduated in medical physics (through the Department of Physics, March 2013). She was accepted shortly thereafter to a Residency position at the University of California-Davis. Please consult Appendix II for the full list of graduated students. Demographic data is given in Appendix III.

During the 2013 calendar year, 3 residents completed the two-year Residency Training Program in Radiation Oncology Physics (E. Mitrou, M. Morcos, G. Twork). The number of McGill University Residency graduates, since first program accreditation in 2000, amounts to 26; the number of residents in the program currently is 13. A listing of the graduates and various relevant data are provided in Appendix IV.

The teaching distribution during the 2013 calendar year is shown in the list of instructors for didactic courses in Appendix V. During the 2013 calendar year, all 12 mandatory graduate courses underwent evaluations by students. The results were circulated to staff, are filed in the MPU office, and their summaries without instructor identification are enclosed as Appendix VI.

All individual instructors were evaluated separately and also 2 laboratory courses, having several instructors each, were evaluated based on the course itself as opposed to an individual instructor. On a scale of 1 (bad) to 5 (excellent) and averaged over all registered students, the evaluations for the Winter 2013 semester ranged from 3.35 to 4.99 and for the Fall 2013 semester they ranged from 4.56 to 5.00.

A conclusion can be made that the MPU students are reasonably satisfied with the quality of education they receive, but that they also send a message to certain instructors that improvements in their teaching methods and attitudes could be made. Considering that the majority of individual instructors who taught didactic or laboratory courses during the 2013 calendar year come from the ranks of clinical physicists who partially volunteer their time and efforts to the academic activities of the MPU, the teaching evaluations attest to an excellent

collaboration between the academic and clinical physicists of the MPU as well as to considerable commitment from the clinical staff to offer good quality teaching.

Students who began, either their first year, second year, or additional session of M.Sc. medical physics studies in Fall 2013 are listed in Appendix VII. The 13 students at various stages of their Ph.D. thesis work during Fall 2012 are listed in Appendix VIII. All 13 have either passed the preliminary examination at the Physics department of McGill or their comprehensive project committee at the BME department.

The employment situation of M.Sc. medical physicists has become more restricted in the face of the 2014/2016 ABR/CCPM deadline (ABR: American Board of Radiology; CCPM: Canadian College of Physicists in Medicine). By this time every clinical medical physicist wishing to sit for the certification exams of the ABR or CCPM must come from a CAMPEP (CAMPEP: Commission for Accreditation of Medical Physics Education Programs) accredited residency program. Despite the increase in CAMPEP-accredited residency programs, access to these programs is severely restricted for M.Sc. graduates, since they compete often with Ph.D. candidates applying to the same positions. The recruitment philosophy of the MPU M.Sc. program, hence, is tending towards recruitment for candidates who are more likely interested in the Ph.D. program. In the past year the recruitment cohort of M.Sc. candidates consisted of 62 candidates, out of which the incoming cohort for September 2014 is expected to consist of 9 students with GPA typically above 3.5.

During 2013 the MPU received a grant from the Natural Sciences and Engineering Research Council under the CREATE program (Collaborative Research and Training Experience) in support of a Training Network designated Medical Physics Research Training Network (MPRTN). This structure provides resources for medical physics research training to a network consisting of McGill MPU, U Laval and collaborators from National Research Council, Canadian Nuclear Safety Commission, MGH Proton Centre, and industry. More information can be found on www.mprtn.com.

I.2.3. Accreditation review and cyclical review

During the year 2013, the MPU was reviewed by the Commission for Accreditation of Medical Physics Education Programs (Campep; http:://
campep.org). The accreditation review document was largely complementary, offered some suggestions but unconditional reaccreditation for 5-years (2013-2018) was received.

The unit also underwent Cyclical Review with site visit in November 2013. The report was again largely complimentary, but pointed to two key points and six other issues, that must be addressed. The two key points in the report were:

1. *"The structure of the unit makes it vulnerable to any of the core academic members leaving. As an example, the devastation by the recent departure of Dr. Bruce Pike was cited. Retention of the current director is seen by the review committee as a priority. Further, the review committee recommends (1) Five positions to be secured at the university to be*

staffed with a mix of junior and mid-career scientists. (2) Elevation from Unit status to Departmental status."

2. *"The imminent retirement of the core experimental Radiation Biologist (Dr. Lehnert) leaves a hole in the wet-lab capability of radiation biology expertise within (or accessible to) the unit."*

In the MPU response a proposal to develop a business plan for a transition to Departmental status was mentioned. Transitioning to Departmental status is a medium-term objective. With regards to point 2, the curriculum update committee is already considering a new format for the course taught by Dr. Lehnert. However, the only solution to the vacuum created by the retirement of Dr Lehnert is to recruit a replacement radiation molecular biologist.

One of the six other points raised by the review committee, was **dry-lab space**. The need for dry lab space on the Glen has been pointed out to both Faculty and RI-MUHC on different occasions. Currently, the MPU will be housed in the Cancer Centre at the Glen. The dry lab space for this will be inadequate and, in the short term, consist of borrowed clinical space. The RI MUHC should provide the dry lab space following the same rules as wet lab space. This is currently not the case.

I.2.4. Involvement in the community

Members of the MPU are actively involved in clinical duties and also take up significant roles in professional and scientific committees and boards. Appendix XVI and Appendix XVII summarize the committee memberships within McGill and outside McGill, respectively. Of particular note are activities in committees of prestigious organizations such as the International Atomic Energy Agency (IAEA) and the International Commission for Radiation Units and measurements (ICRU).

I.2.5. Partnerships

Members of the MPU have a broad network of collaborators worldwide. Examples of these are international collaborations with hospitals and laboratories in Belgium, the UK, the US and others.

Another very important partnership development has improved the capacity of the MPU medical physics residency program. This is done through the so-called *hub-and-spoke model for residency training* that is being developed by MPU together with partner centres. The MPU is the host and several satellite centres are affiliate institutions for medical physics residency training. The MPU-MUHC has partnership agreements with (1) St. Peters (Albany); (2) U. Laval (CHUQ); (3) U. Montreal (CHUM); (4) Trois-Rivieres; (5) JGH and (6) Oman. During the year 2013, this model has significantly developed and the current number of clinical medical physics residents in the hub-and-spoke model is 13 (see Appendix IV)

I.2.6. Milestones

During the year 2013, the selection of the tenure-track faculty, Dr. Shirin Enger (Uppsala, Sweden) was concluded. Dr. Enger joined the department on Aug 1, 2014.

During 2013 all clinical medical physicists at the MUHC and the JGH that were not yet part of the MPU nor appointed as CAS-professional or CAS-research in the Department of Oncology became affiliate member of the MPU.

MPU member Dr. Bruce Pike left McGill in September 2013 to take up a position at the University of Calgary. Dr. Pike remains a member of the MPU and adjunct professor in the Department of Physics and, to date, continued to supervise some MPU Ph.D. students.

I.2.7. Honors, awards and prizes

The year 2013 was a very successful year with regards to scholarship awards to students. They can be summarized as follows:

Student Name	Scholarship type/agency	Supervisor
Ian Gerard	Brain Canada-CIBC	D.L. Collins
James Renaud	CIHR (CGS)	J. Seuntjens
Robert Maglieri	CNSC (Govt, Canada)	J. Kildea
Sangkyu Lee	EIRR21 (CIHR, Toronto)	I.El Naqa & J Seuntjens
Marc-André Renaud	FQRNT	J Seuntjens
Piotr Pater	FRSQ	I El Naqa & J Seuntjens
Alexandra Bourque	MSSS (Medical Physics)	JF Carrier (CHUM)
Dominique Guillet	MSSS (Medical Physics)	F. Deblois
Daniel Markel	RI-MUHC	I El Naqa
Martin Carrier-Vallieres	NSERC (CGS)	I El Naqa
Eric Christiansen	TOHCC scholarship	E. Vandervoort (TOHCC)
Joannie Desroches	FQRNT-NSERC (BMP Innovation bursary)	F Leblond (Polytechnique)
Ghada Aldosary	Saudi Arabian Cultural bureau	A. Sarfehnia
Ola Maria (PDF)	Strauss Fellowship (McGill)	I El Naqa

Further awards or honors obtained/maintained in 2013 are:

1. **Pike, G. Bruce**: James McGill Professor, McGill University, 2007-2013.
2. **Pike G. Bruce**: Killam Professor, Montreal Neurological Institute, 2003-present.
3. **Reader, Andrew**: Killam Professor, McGill University, 2012-present.
4. **Martin Carrier-Valieres**: student won the J.S. Laughlin award at the Annual meeting of the American Association of Physicists in Medicine. (AAPM) (supervisor: I. El Naqa)

5. **Issam El Naqa**: Outstanding reviewer for the journal "International Journal of Radiation Oncology, Biology, Physics for the year 2013.

I.2.8. Fundraising

During 2013, the MPU Alumni Committee established the **"Ervin B. Podgorsak Scholarship for Graduate Studies in Medical Physics"** and organized an inaugural reception on September 17, 2013 with the presence of Dr. Podgorsak and his family as well as university officials, colleagues and friends. The goal of the scholarship is to support outstanding Medical Physics students at the M.Sc. level in their studies. By creating this scholarship, the MPU is making a commitment to sustain Dr. Podgorsak's dedication to academic excellence through increased student funding. Through the generous support of our faculty, alumni, and friends, the MPU fundraising committee hopes to create a scholarship fund by raising at least $10,000 per year for a minimum of four years. More information can be found on http://www.mcgill.ca/medphys/scholarship-0.

Members of the MPU also inaugurated the Facebook group "McGill Medical Physics Alumni and Friends" (https://www.facebook.com/groups/McGillMPU/)

II Unit Status Update

II.1 General objectives of the Medical Physics Unit

1) To promote the field of medical physics through teaching, research and clinical service.

2) To encourage interest, education, training and research in medical physics.

3) To join in one academic unit (Medical Physics Unit) the various members of McGill departments, McGill University Health Centre and Jewish General Hospital who, through their academic training in physics, engineering or a related science and through work in clinical and academic environments, support the objectives (i) and (ii) above.

4) To offer a graduate program leading toward an M.Sc. degree in medical physics.

5) To offer, in conjunction with McGill's Physics and Biomedical Engineering departments, a graduate program leading toward a Ph.D. degree in medical physics.

6) To offer a residency program in radiation oncology physics.

7) To maintain CAMPEP accreditation of the M.Sc. and Ph.D. academic programs as well as the residency training program in radiation oncology physics.

8) To offer support to other institutions wishing to provide a residency program in radiation oncology physics through affiliation with the CAMPEP-accredited McGill program.

9) To encourage, promote and excel in research in the application of physics in diagnosis and treatment of human disease.

10) To promote McGill as an important institution in the international medical physics community through excellence in teaching of, and research in, medical physics.

11) To promote national and international medical physics organizations through active participation of the Medical Physics Unit and its members in these organizations.

12) To encourage links and collaboration between medical physicists, clinicians and basic scientists with the goal of developing and improving methods for diagnosis and treatment of human disease.

13) To provide medical physics consultation services to McGill institutions, national and international organizations and the general public, as required.

14) To initiate a structured student recruitment program at the Ph.D. level and to provide a stimulating research environment to these candidates.

15) To work with clinicians and basic scientists in the development of a strategic research program in radiation oncology.

16) To work with industry, government agencies, other CAMPEP accredited programs as well as international academic institutions to update and modernize the graduate programs so that graduate students have access to expertise and equipment most suitable for their project and education.

II.2 Specific objectives for 2014-2015

The goals for the upcoming academic year revolve around the response to the cyclical review report, the deployment of the MPRTN CREATE program as well as the need to further develop the Unit's research capacity and support structure:

1) To continue rebuilding the academic program staffing and appoint more CAS-research (with salary source MUHC) faculty
2) To continue graduate program curriculum revisions commensurate recent developments in Medical Physics and its interaction with associated sciences. To establish the CREATE courses as outlined in the CREATE proposal
3) In response to the cyclical review report (January 2014), to develop a business plan for the future of the MPU, including consideration for Departmental status;
4) In response to the cyclical review report (January 2014), to address the course teaching of Radiation Biology and recruitment of faculty for Rad. Biol.;

5) To further improve the MPU's operating budget to cover adequately the teaching responsibilities of non-McGill clinical physics staff (rate at McGill is $2400 per credit).
6) To maintain and increase productivity with regard to standard academic indicators (number of publications, presentations, graduating students, etc.).

II.3. Overview Of McGill Medical Physics Program, staff and committee structure

Details regarding the graduate programs and research in medical physics can be found on the Medical Physics Unit website at: **mcgill.ca/medphys**.

Established:	September 1979 by the Faculty of Medicine of McGill University Montréal	
Directors:	M. Cohen	*(September 1979 to August 1991)*
	E.B. Podgorsak	*(September 1991 to December 2008)*
	J. Seuntjens	*(January 2009 to present)*

GRADUATE PROGRAMS:

- ***Graduate Program Director (GPD):*** Jan Seuntjens, Ph.D., FCCPM, FAAPM
- ***Degrees offered:*** M.Sc., Ph.D. and Certificate program in medical physics
- ***Accreditation:*** CAMPEP* accredited the M.Sc. & Ph.D. programs since 1993
- ***Re-accreditation:*** CAMPEP* re-accredited both programs (1998, 2003, 2008, 2013):
- ***M.Sc. degrees conferred to date:*** **210**
- ***Ph.D. degrees conferred to date:*** **31**
- ***Current M.Sc. student enrollment:*** **16**
- ***Current Ph.D. student enrollment:*** **12**
- ***Number of mandatory courses:*** **12 (M.Sc), 2 (Ph.D)**
- ***Number of academic faculty:*** **7**
- ***Number of clinical faculty:*** **19**
- ***Number of affiliated members*** **2**

RESIDENCY PROGRAM IN RADIATION ONCOLOGY PHYSICS:

- ***Residency Program Director (RPD):*** William Parker, M.Sc., FCCPM
- ***Accreditation:*** CAMPEP* accredited the Residency program in 2000
- ***Re-accreditation:*** CAMPEP* re-accredited the program (2005, 2010) for 5 y
- ***Number of graduates to date:*** **37**
- ***Current enrollment:*** **6**
- ***Program duration:*** **2 years**
- ***Number of mandatory rotations:*** **4**
- ***Number of mandatory courses:*** **4**

The **staff** (see Appendix I) of the MPU consists of 27 staff members (25 internal, 2 affiliated) and a full-time Administrative Coordinator (Margery Knewstubb). The MPU Administrative Coordinator holds the only permanent staff position in the MPU, and organizes the day-to-day activities of the MPU, deals with graduate students on a daily basis, corresponds with potential applicants to the medical physics program, and records minutes of MPU staff meetings.

The MPU is run by a Director who is appointed by the Dean of Medicine. Since 1991 the directorship of the MPU is a part-time position, and is filled by the director of the *Medical Physics Department* of the McGill University Health Centre. All academic members of the MPU, except for the two affiliated members, hold primary appointments in other major departments either of the McGill's Faculty of Medicine. For more information see *Appendix I*. The two affiliated members work outside McGill; Dr. R. Richardson at the Atomic Energy of Canada in Chalk River, Ontario and Dr. W. Wierzbicki at the Maisonneuve-Rosemont Hospital in Montreal. Both have special links with the MPU, Dr. Richardson as an academically inclined health physicist and Dr. Wierzbicki as a lecturer and thesis supervisor.

The main responsibilities of clinical physicists are related to clinical aspects of radiation therapy; however, the clinical physicists get involved with teaching of didactic medical physics courses and laboratories, as well as with co-supervision of M.Sc. graduate students. The engineers are involved with teaching of medical electronics.

Four committees help with the running of the MPU: the *Graduate Committee*, *Seminar Committee*, the *Curriculum Update Committee* and the *Alumni Committee*.

The **Graduate Committee** (Dr. J. Seuntjens, chair; M. Knewstubb; Dr. J. Kildea; Dr. I El Naqa, Dr. P. Francois (Dept Physics)) evaluates applications to the academic programs, decides on the number of candidates to be accepted for a particular academic year, and recommends the most suitable candidates for admission. During the 2011-2012 and the 2012-2013 academic years, 56 and 59 complete applications were received by the MPU, respectively, and the graduate committee recommended to McGill 24 and 15 candidates for admission into the 2011-2012 and 2012-2013 academic cohorts, respectively. For more information, please see Section 8.C.

The **Seminar Committee** (Dr. E. Soisson, local arrangements MUHC, Dr. J. Kildea; JGH: Dr. S. Devic) organizes the medical physics seminar series, a bi-monthly collection of seminars given by MPU staff, outside visitors or graduate students to staff and students of the MPU. The medical physics seminars organized during the Winter semester 2012 and the Fall & Winter semesters of the 2012-2013 academic year are listed in *Appendix XV*.

The **Curriculum Update Committee** (chair Dr. J Seuntjens, Dr. I El Naqa, Dr. J Kildea, Dr. A. Syme, Mr. W. Parker) reviews the curricula for the M.Sc. and Ph.D. programs.

The **Alumni Committee** (chair Dr. E. Soisson, Dr. J Seuntjens, Dr. J Kildea, M. Knewstubb, T. Nisic) aims to organize and improve the relations between the MPU and its alumni. One initiative is the establishment of the Ervin B. Podgorsak Scholarship for studies in Medical Physics (See Highlights, Section I.2).

III. Grants, publications, and service outside of McGill

III.1. Publications

The calendar year 2013 in relation to teaching, research, and service was a normal year for the MPU, with all performance indicators fairly stable in comparison to previous academic years. As demonstrated by the lists of **publications** (x60, *Appendix IX*), **published abstracts** (x98, *Appendix X*), **invited presentations** (x29, *Appendix XI*), and **presentations at national and international conferences** (x86 *Appendix XII*), all for calendar year 2013, the MPU staff are productive, representing with distinction McGill's involvement in medical physics research.

Historical academic productivity of MPU staff from 1996 to December 31, 2012 can be found at the following URLs:

http://www.medphys.mcgill.ca/academic/listofpublications.html
list of published papers;
list of published abstracts;
list of invited presentations;
list of presentations at national or international meetings.

III.2. Grants

The listing of research and teaching grants held by the MPU staff (*Appendix XIII*) also attests to the respectable professional standing of the MPU staff members. It should be noted that the grants are generally attained under the auspices of the grantee's primary department. Current research interests of the 27 MPU academic staff members are shown in *Appendix XIV*.

III.3. Committees and Boards

As shown in *Appendices XVI* and *XVII*, the MPU staff members are active on committees and boards within and outside of McGill. Currently, the MPU members serve on Boards of Directors of the two Canadian medical physics organizations: the *Canadian College of Physicists in Medicine* (CCPM) and the *Canadian Organization of Medical Physicists* (COMP). MPU staff members currently also serve on Boards of American Medical Physics organizations: the *Commission on Accreditation of Medical Physics Education Programs* (CAMPEP); the *American Association of Physicists in Medicine* (AAPM); and the AAPM Summer School, International Atomic Energy Agency (IAEA), and International Commission of Radiation Measurements and Units (ICRU) Task groups, Work Groups, committees and subcommittees.

III.4. Other academic activities of the MPU

Three **meetings of the MPU academic staff** were held during the 2013 calendar year. In January, 2013 completion of the first and start of the second semester of the 2011-2012 academic year; in May 2013, completion of the second semester and start of M.Sc. thesis research work of the 2011-2012 academic year and in September 2013, start of the 2012-2013 academic year. The purpose of the staff meetings is to discuss the issues affecting the MPU in general and the performance of graduate students in particular. Minutes of each staff meeting are taken by the graduate coordinator and distributed to staff and the Dean of Medicine as soon as possible following each meeting. The minutes of all staff meetings are filed in the MPU office and available for inspection upon request.

During the Winter semester of the 2012-2013 academic year and the Fall semester of the 2013-2014 academic year, the MPU organized regular **medical physics seminars** given by staff, graduating students or visiting scientists. The frequency of the seminars averaged two per month in the Fall semester and one per week in the Winter semester (*location*: Osler Amphitheatre at the Montreal General Hospital; *time*: Friday noon). The presentations are video linked to the JGH to allow MPU members there to attend without significantly disturbing their clinical activities. The attendance of seminars is mandatory for graduate students and is verified through a sign-in sheet. A seminar committee chaired by Dr. E. Soisson organizes the seminars and a listing of the MPU medical physics seminars during the 2013 calendar year is given in *Appendix XV*.

All McGill graduate students in medical physics are required to attend **weekly formal research presentation meetings** (Fridays at 9:15 a.m.). The presentations are given either by staff or students. At least once every three months each student presents his or her research work and results, and thus gains practical experience on organizing and giving scientific presentations. The speaker of a given seminar is introduced by the presenter of the previous seminar. Student attendance is compulsory and verified through a sign-up sheet. The senior Ph.D. student, who also serves as a student representative, organizes the weekly research seminars and organizes the sign-up sheet.

All graduate students attend the weekly **informal research meetings** (Thursday 11:30 am) where students discuss daily problems and solutions in their research projects preceded by a review of journal papers. Discussions are performed in subgroups where students working on related subjects discuss. There are currently four subgroups of 3 to 5 students: (1) beam modeling and modulated electron therapy; (2) dosimetry and clinical; (3) imaging and (4) radiobiology. In each group students are responsible to invite attendance of MPU staff suitable for their projects. Each fourth meeting is a group meeting of the entire group, with compulsory attendance of all students.

The weekly **clinical physics meetings** of the MUHC Medical Physics Department are open to graduate students and some with particular interests in radiation oncology attend them regularly. Students are also encouraged to attend the **weekly seminars** organized by the Radiation Oncology Department.

Students are strongly encouraged to submit their work for presentation at national and international scientific meetings, either as regular presentations or as presentations during young investigator symposia. During the past 11 years, MPU students received 6 awards in the J.R. Cameron AAPM young investigator symposia, 4 awards in the J.R. Cunningham COMP/CCPM young investigator symposia, and 1 award in the young investigator symposium of the ICCR.

III. Discussion of performance

As evident from the *Highlights* (Section I.2) above and the *Appendices* to this report, the MPU staff and students have during the 2013 calendar year continued to bring some prestige to the University. They also fulfilled the basic objectives of the MPU. The MPU is known worldwide for its high quality teaching programs, and its M.Sc. and Ph.D. graduates generally do not have difficulties in finding suitable jobs upon graduation.

As shown in *Appendices II* through *IV*, graduates of McGill medical physics programs and the residency program are distributed in institutions throughout Quebec, Canada, North America and around the World; quite a number of them in leadership positions. This attests to high standards of the McGill programs, helps with the retention of the CAMPEP accreditation, and attracts high quality graduate students into the programs.

One may state that 2013 was relatively stable for the MPU in relation to teaching, research, and service, with all performance indicators similar to those of previous academic years, providing the M.Sc. and Ph.D. students in Medical Physics with the academic standards they expected from McGill.

The Cyclical Review carried out in 2013 was largely complimentary, however, it points out that the stability of the Unit in future years requires consideration of elevating the MPU to Departmental status.

APPENDICES

APPENDIX I.

LIST OF FACULTY MEMBERS

MCGILL UNIVERSITY: MEDICAL PHYSICS UNIT

	FACULTY MEMBER	DIVISION
1	**JAN SEUNTJENS**, PhD, FAAPM, FCCPM *Director, Medical Physics Unit* *Professor, Department of Oncology*	Clinical
2	**D. LOUIS COLLINS**, PhD *Associate Member, Medical Physics Unit* *Associate Professor, Dept Neurology & Neurosurgery*	Imaging
3	**STEPHEN D. DAVIS**, PhD, MCCPM, DABR *Affiliate Member, Medical Physics Unit*	Clinical
4	**FRANÇOIS DEBLOIS**, PhD, FCCPM *Associate Member, Medical Physics Unit* *Assistant Professor, Department of Oncology* *Clinical Chief, Medical Physics, JGH Dept Radiation Oncology*	Clinical
5	**SLOBODAN DEVIC**, PhD, FCCPM *Affiliate Member, Medical Physics Unit* *Assistant Professor, Department of Oncology*	Clinical
6	**ISSAM EL NAQA**, PhD *Associate Member, Medical Physics Unit* *Associate Professor, Department of Oncology*	Clinical
7	**MICHAEL D. C. EVANS**, MSc, FCCPM, FCOMP *Associate Member, Medical Physics Unit* *Assistant Professor, Department of Oncology*	Clinical
8	**REZA FARIVAR-MOHSEN**, PhD *Associate Member, Medical Physics Unit* *Assistant Professor, Ophthalmology Medicine*	Imaging (Vision)
9	**ALAIN GAUVIN**, MSc, MCCPM, DABMP, DABR *Affiliate Member*, *Medical Physics Unit*	Imaging
10	**GYORGY HEGYI**, PhD *Affiliate Member, Medical Physics Unit*	Imaging
11	**MARITZA HOBSON**, PhD *Affiliate Member, Medical Physics Unit*	Clinical

MPU Faculty members (continued)

FACULTY MEMBER	DIVISION
12 CHRISTIAN JANICKI, PhD *Affiliate Member, Medical Physics Unit* *Radiation Safety Officer, Montreal Neurological Institute & Hospital*	Clinical
13 JOHN KILDEA, PhD, MCCPM *Affiliate Member, Medical Physics Unit*	Clinical
14 PIERRE LÉGER, B.Eng *Affiliate Member, Medical Physics Unit*	Clinical
15 SHIRLEY M. LEHNERT, PhD *Associate Member, Medical Physics Unit* *Professor, Department of Oncology*	Clinical
16 IVES LEVESQUE, PhD *Associate Member, Medical Physics Unit* *Assistant Professor, Department of Oncology*	Clinical
17 LI HENG LIANG, MSc, MCCPM *Affiliate Member, Medical Physics Unit*	Clinical
18 THALAT MONAJEMI, PhD *Affiliate Member, Medical Physics Unit*	Clinical
19 WILLIAM A. PARKER, M.Sc., FCCPM *Associate Member, Medical Physics Unit* *Assistant Professor, Department of Oncology* *Clinical Chief, Department of Medical Physics, MUHC* *Director, Residency Training Program*	Clinical
20 HORACIO J. PATROCINIO, M.Sc., FCCPM, DABR *Associate Member, Medical Physics Unit* *Assistant Professor, Department of Oncology*	Clinical
21 G. BRUCE PIKE, Ph.D. *Associate Member, Medical Physics Unit* *Professor, Department of Neurology & Neurosurgery*	Imaging
22 ERVIN B. PODGORSAK, PhD, FCCPM, FCOMP, FAAPM, DABR *Emeritus Professor, Medical Physics Unit & Department of Oncology*	
23 EMILY POON, Ph.D., MCCPM *Affiliate Member, Medical Physics Unit*	Clinical
24 MARIJA POPOVIC, Ph.D. *Affiliate Member, Medical Physics Unit*	Clinical
25 ANDREW READER, Ph.D. *Associate Member, Medical Physics Unit* *Associate Professor, Department of Neurology & Neurosurgery*	Imaging

MPU Faculty members (continued)

FACULTY MEMBER	DIVISION
26 RICHARD B. RICHARDSON, Ph.D. *Affiliate Member, Medical Physics Unit* *Research Scientist, Internal Dosimetry Service*	Clinical
27 RUSSELL RUO, M.Sc., FCCPM, DABR *Affiliate Member, Medical Physics Unit*	Clinical
28 ARMAN SARFEHNIA, Ph.D., MCCPM *Affiliate Member, Medical Physics Unit* *Assistant Professor, Department of Oncology*	Clinical
29 MONICA SERBAN, M.Sc., MCCPM *Affiliate Member, Medical Physics Unit*	Clinical
30 EMILIE SOISSON, Ph.D., MCCPM, DABR, CMD *Associate Member, Medical Physics Unit* *Assistant Professor, Department of Oncology*	Clinical
31 GABRIELA STROIAN, Ph.D., MCCPM *Associate Member, Medical Physics Unit* *Assistant Professor, Department of Oncology*	Clinical
32 ALASDAIR SYME, Ph.D., FCCPM *Associate Member, Medical Physics Unit* *Assistant Professor, Department of Oncology*	Clinical
33 JONATHAN THÉBAUT, M.Sc. *Affiliate Member, Medical Physics Unit*	
34 NADA TOMIC, M.Sc., FCCPM *Affiliate Member, Medical Physics Unit*	Clinical
35 WIESLAW WIERZBICKI, Ph.D., FCCPM *Affiliate Member, Medical Physics Unit* *Chief Physicist, Department of Radiation Oncology, Hôpital Maisonneuve-Rosemont*	Clinical

LIST OF STAFF MEMBERS

McGILL UNIVERSITY HEALTH CENTRE : DEPARTMENT OF MEDICAL PHYSICS

Director, Department of Medical Physics, MUHC	Jan Seuntjens, *PhD, FCCPM, FAAPM*
Clinical Chief, Department of Medical Physics, MUHC	William Parker, *M.Sc., FCCPM*
Administrative officer/Research Coordinator	Tatjana Nisic, *MA*
Administrative Coordinator	Margery Knewstubb

Medical Physicists	Stephen Davis, *PhD, MCCPM, DABR* Michael Evans, *MSc, FCCPM, Rad.Safety Officer, Class II, MUHC* Gyorgy Hegyi, *PhD* Maritza Hobson, *PhD, MCCPM, DABR* John Kildea, *PhD, MCCPM* Thalat Monajemi, *PhD, MCCPM* Horacio Patrocinio, *MSc, FCCPM, DABR* Emily Poon, *PhD, MCCPM* Marija Popovic, *PhD, FCCPM* Russell Ruo, *MSc, FCCPM* Arman Sarfehnia, *PhD, MCCPM* Monica Serban, *MSc, MCCPM* Emilie Soisson, *PhD, CMD, MCCPM, DABR* El-Naqa Issam, PhD, *DABR (Associate Professor)* Ervin B. Podgorsak, *PhD, FCCPM, DABMP, FAAPM, FACMP (Professor Emeritus)*
Dosimetrists	Irene Marie Bélanger, *RTT* Line Comeau, *RTT), CMD* Lioudmila Dychkant, *RTT* Chris Kaufmann, *RTT, CMD – Chief Dosimetrist* Francesco Paolino, *RTT, BS* Maria Papageorgiou, *RTT* Dinesh Parmar, *RTT* Cenzetta Procaccini, *RTT*
Chief electronic engineer	Pierre Léger, *BEng, Chief Engineer*
Electronic technicians	Bhavan Siva, *BEng* Joe Larkin
Information systems technician	Suzana Darvasi, *BSc*
Machine shop technician	TBA
Resident	Gregory Twork, *MSc*
Research Assistant	Norma Ybarra, *PhD*

APPENDIX II.

M.Sc. DEGREES IN MEDICAL PHYSICS : January-December 2013

1. ALDOSARY, Ghada (A. Sarfehnia)

The measurement of the linear transfer of various radiotherapeutic beams in the clinic: A feasibility study
Currently employed: Resident, McGill University Health Centre, Montréal, Québec

2. ARCHAMBAULT, Laurie (W. Wierzbicki)

Validation of IoO's electron Monte Carlo module in heterogeneous phantoms
Currently employed: Physicist, Hôpital Maisonneuve-Rosemont, Montréal, Québec

3. BEKERAT, Hamed (S. Devic, A. Sarfehnia)

Improving the energy response of external beam therapy (EBT) GAFCHROMIC dosimetry films at low energies (s100 keV)
Currently employed: Resident, SMBD-Jewish General Hospital, Montréal, Québec

4. BOURQUE, Alexandra (H. Bouchard, J. Seuntjens)

A stoichiometric calibration method for dual energy computer tomography
Currently employed: Physicist, Hôpital Maisonneuve-Rosemont, Montréal, Québec

5. CARRIER-VALLIÈRES, Martin (I. El Naqa)

FDG-PET/MR imaging for prediction of lung metastases in soft-tissue sarcomas of the extremities by texture analysis and wavelet image function
Currently: Ph.D. student, McGill University, Montréal, Québec

6. DYESS, Amanda (W. Parker)

Patient dose verification for image-guided radiation therapy using a deformable registration tool
Currently employed: Resident, St-Petersburg Hospital, NY State & McGill University, Montreal, Québec

7. FAN, Michael (G. Stroian, F. DeBlois)

Web application in radiotherapy: The standardization of treatment planning and development of quantitative plan quality metrics
Currently employed: Resident, SMBD-Jewish General Hospital, Montréal, Québec

8. GHOLAMPOURKASHI, Sara (F. DeBlois)

Web-based system for quality assurance of radiation oncology equipment and procedures
Currently: PhD student, Carleton University, Ottawa, Ontario

9. KHATCHADOURIAN, Rafael (J. Kildea, M.D.C. Evans)

Monte Carlo simulations for neutron shielding in radiation therapy bunkers
Currently employed: Ph.D. student, Medical Physics Unit, McGill University, Montreal, Québec

10. WATSON, Peter (J. Seuntjens)

Scatter artifact correction in cone-beam CT images
Currently: Ph.D. student, McGill University, Montreal, Québec

11. ZLATEVA, Yana (I. El Naqa)

Investigation of Cherenkov emission with applications in dosimetry, image guidance and intensity modulation in radiation therapy
Currently: Ph.D. student, Medical Physics Unit, McGill University, Montreal, Québec

Ph.D. DEGREES IN MEDICAL PHYSICS : January-December 2013

(*major department and supervisors are indicated in parentheses*)

1. CHUNG, Eunah (Physics – *J. Seuntjens*)
Development of radiation dosimetry techniques for nonstandard beam radiotherapy
Currently employed: Resident, UC Davis Medical Center, Sacramento, California

APPENDIX III.

BASIC DEMOGRAPHIC DATA

for the 210 M.Sc. and 31 Ph.D. GRADUATES

of the MEDICAL PHYSICS PROGRAMS

at McGILL UNIVERSITY

M.Sc. GRADUATES IN MEDICAL PHYSICS : 210

1980 – December 2013

MEDICAL PHYSICS UNIT : McGILL UNIVERSITY

Total number of M.Sc. graduates in medical physics:		**210**
Graduates' origin:	Quebec	70/210
	another Canadian province	62/210
	USA	13/210
	another country	65/210
Working in medical physics:		**186/210**
	in Quebec	74/186
	in another Canadian province	51/186
	in the USA	43/186
	in another country	18/186
Currently Ph.D. student:		13/210
	(10 in Quebec, 1 in Ontario, 1 in US, 1 in Switzerland)	
Origin of M.Sc. graduates currently working in Quebec:		**75/210**
	Quebec	39/75
	another Canadian province	11/75
	USA	1/75
	another country	24/75
M.Sc. graduates of Quebec origin:		**70/210**
	working in medical physics	62/70
	in Quebec	39/70
	in another Canadian province	6/70
	in the USA	11/70
	in another country	4/70
Currently Ph.D. student:		2/70

Ph.D. GRADUATES IN MEDICAL PHYSICS : 31

1983 – December 2013

MEDICAL PHYSICS UNIT : McGILL UNIVERSITY

Total number of Ph.D. graduates in medical physics:		**31**
Graduates' origin:	Quebec	9/31
	another Canadian province	12/31
	USA	0/31
	another country	10/31
Working in medical physics:		**30/31**
	in Quebec	10/30
	in another Canadian province	8/30
	in the USA	10/30
	in another country	2/30
Origin of Ph.D. graduates currently working in Quebec:		**10/31**
	Quebec	5/10
	another Canadian province	2/10
	USA	0/10
	another country	3/10
Ph.D. graduates of Quebec origin:		**9/31**
	working in medical physics	9/31
	in Quebec	5/9
	in another Canadian province	1/9
	in the USA	3/9
	in another country	0/9

APPENDIX IV.

GRADUATES OF THE ACCREDITED TWO-YEAR RESIDENCY TRAINING PROGRAM IN RADIATION ONCOLOGY PHYSICS AT MCGILL

#	Name	Date grad	Background at entry	Current position	Current address
1	Belal Moftah, Ph.D.	Dec '99	Ph.D. (high energy phys) U. British Columbia	Chief physicist	Dept of Biomedical Physics, King Faisal Specialist Hospital & Research Centre, Jeddah, Saudi Arabia
2	Lara Dyke, Ph.D.	May '00	M.Sc. (medical physics) U. Alberta	Clinical medical physicist	Varian Medical Systems, Miami, Florida, USA
3	Tony Falco, Ph.D.	Dec '00	Ph.D. (medical physics) McGill U	Clinical medical physicist	Resonant Medical, Incorporated Montreal, Quebec
4	Slobodan Devic, Ph.D.	Mar '02	Post-graduate training Washington U	Clinical medical physicist	Dept Radiation Oncology, Jewish General Hospital, Montreal, Quebec
5	Kavita Murthy, M.Sc.	May '02	M.Sc. (medical physics) McGill U	Clinical medical physicist	Canadian Nuclear Safety Commission Ottawa, Ontario
6	Jennifer Barker, M.Sc.	Dec '02	M.Sc. (medical physics) McGill U	Clinical medical physicist	Dept Radiation Oncology, Jewish General Hospital, Montreal, Quebec
7	François DeBlois, Ph.D.	Jul '03	Ph.D. (medical physics) McGill U.	Clinical medical physicist	Dept Radiation Oncology, Jewish General Hospital, Montreal, Quebec
8	Siobhan Ozard, Ph.D.	Nov '03	Ph.D. (medical physics) U. British Columbia	Clinical medical physicist	Dept Medical Physics, Windsor Regional Cancer Centre, Windsor, Ontario
9	Wamied Abdel-Rahman, Ph.D.	Dec '05	Ph.D. (medical physics) McGill U.	Clinical medical physicist	Dept Radiation Oncology, King Faisal Specialist Hospital, Damman, Saudi Arabia
10	Yizhen Wang, M.Sc.	May '06	M.Sc. (medical physics) McGill U	Clinical medical physicist	Dept Radiation Oncology, Credit Valley Hospital, Mississauga, Ontario
11	Li Heng Liang, M.Sc.	Aug '06	M.Sc. (medical physics) McGill U	Clinical medical physicist	Dept Radiation Oncology, Jewish General Hospital, Montreal, Quebec
12	Nada Tomic, M.Sc.	Aug '06	M.Sc. (medical physics) McGill U	Clinical medical physicist	Dept of Radiation Oncology, Jewish General Hospital, Montreal, Quebec
13	Gabriela Stroian, Ph.D.	Aug '07	Ph.D. (theoretical physics) U Paul Sabatier, France	Clinical medical physicist	Dept of Radiation Oncology, Jewish General Hospital, Montreal, Quebec
14	Eric Reynard, M.Sc.	Mar '09	M.Sc. (medical physics) McGill U	Clinical medical physicist	PEI Cancer Treatment Centre, Queen Elizabeth Hospital, Charlottetown, Prince Edward Island
15	Kristin Marchant, Ph.D.	Mar '09	Ph.D. (medical physics) McGill U	Clinical medical physicist	Dept Radiation Oncology, Allan Blair Cancer Centre, Regina, Saskatchewan
16	Krum Asiev, M.Sc.	Jun '09	M.Sc. (medical physics) McGill U	Clinical medical physicist	Dept Radiation Oncology, Jewish General Hospital, Montreal, Quebec
17	Ismail Aldahlawi, M.Sc.	Jun '10	M.Sc. (medical physics) McGill U	Clinical medical physicist	Dept Radiation Oncology, King Faisal Specialist Hospital, Damman, Saudi Arabia
18	Emily Poon, Ph.D.	May '11	Ph.D. (medical physics) McGill U	Clinical medical physicist	Dept Medical Physics, McGill University Health Centre, Montreal, Quebec
19	Jonathan Thébaut, M.Sc.	May '11	M.Sc. (medical physics) McGill U	Clinical medical physicist	Dept Radiation Oncology, Jewish General Hospital, Montreal, Quebec
20	Arman Sarfehnia, Ph.D.	Feb '12	Ph.D. (medical physics) U Western Ontario	Clinical medical physicist	Dept Medical Physics, McGill University Health Centre, Montreal, Quebec
21	John Kildea, Ph.D.	Jun '12	Postdoc (astrophysics) Harvard U	Clinical medical physicist	Dept Medical Physics, McGill University Health Centre, Montreal, Quebec
22	Stephen Davis, Ph.D.	Aug '12	Ph.D. (medical physics) U Wisconsin	Clinical medical physicist	Dept of Medical Physics, McGill University Health Centre, Montreal, Quebec
23	Joseph Holmes, M.Sc.	Aug '12	M.Sc. (medical physics) McGill U	Clinical medical physicist	Kootenai Medical Centre, Coeur d'Alene, Idaho
24	Ellis Mitrou, M.Sc.	Aug '13	M.Sc. (medical physics) McGill U	Clinical medical physicist	Dept Radiation Oncology, Jewish General Hospital, Montreal, Quebec
25	Marc Morcos, M.Sc.	Aug '13	M.Sc. (medical physics) McGill U	Clinical medical physicist	Dept Radiation Oncology, Jewish General Hospital, Montreal, Quebec
26	Greg Twork, M.Sc.	Aug '13	M.Sc. (medical physics) McGill U	Clinical medical physicist	Dept Medical Physics, McGill University Health Centre Montreal, Quebec

Graduates of the Residency Training Program (continued)

CURRENTLY REGISTERED:

27	Amanda Dyess, M.Sc.	Aug '14	M.Sc. (medical physics) McGill U	Clinical medical physicist	St Peter's Hospital, Albany, New York
28	Hamed Bekerat, M.Sc.	Aug '14	M.Sc. (medical physics) McGill U	Clinical medical physicist	Dept Radiation Oncology, Jewish General Hospital, Montreal, Quebec
29	Naomi Shin, M.Sc.	Aug '14	M.Sc. (medical physics) McGill U	Clinical medical physicist	Dept Medical Physics, McGill University Health Centre, Montreal, Quebec
30	Michael Fan, M.Sc.	Aug '15	M.Sc. (medical physics) McGill U	Clinical medical physicist	Dept Radiation Oncology, Jewish General Hospital, Montreal, Quebec
31	Karim Zerouali, M.Sc.	Aug '15	M.Sc. (medical physics) U de Montréal	Clinical medical physicist	Dépt Radio-oncologie, CHUM, Montréal, QC
32	Yuji Kamio, M.Sc.	Aug '15	M.Sc. (medical physics) U de Montréal	Clinical medical physicist	Dépt Radio-oncologie, CHUM, Montréal, QC
33	Khushdeep Singh, M.Sc.	Aug '15	M.Sc. (medical physics) McGill U	Clinical medical physicist	Dept Medical Physics, McGill University Health Centre, Montreal, Quebec
34	Ghada Aldosary, M.Sc.	Oct '15	M.Sc. (medical physics) McGill U	Clinical medical physicist	Dept Medical Physics, McGill University Health Centre, Montreal, Quebec
35	Mathieu Goulet, Ph.D.	Dec '15	Ph.D. (medical physics) Université Laval	Clinical medical physicist	Dépt Radio-oncologie, Hôpital Hôtel-Dieu de Québec, Québec, Qc
36	Varun Thakur, M.Sc.	Dec '15	M.Sc. (medical physics) McGill U	Clinical medical physicist	Dépt Radio-oncologie, CHUM, Montréal, QC
37	Sharlie Vincent, M.Sc.	Dec '15	M.Sc. (medical physics) Université Laval	Clinical medical physicist	Centre de santé et services sociaux de Trois-Rivières (CHRTR), Montréal, QC
38	Tanner Connell, Ph.D.	Feb '16	M.Sc. (medical physics) McGill U	Clinical medical physicist	Dept Medical Physics, McGill University Health Centre, Montreal, Quebec
39	Iqbal Alamri, Ph.D.	Aug'18	M.Sc. (medical physics) U Surrey, England	Clinical medical physicist	Dept Medical Physics, McGill University Health Centre, Montreal, Quebec

APPENDIX V.

COURSE INSTRUCTORS : CALENDAR YEAR 2013

MEDICAL PHYSICS UNIT : McGILL UNIVERSITY

Course #	Course Title	Instructor(s)
Winter semester 2013		
MDPH 602	*Applied Dosimetry*	**A. Sarfehnia, S. Davis**
MDPH 603	*Laboratory in Radiation Physics*	**S. Davis, A Sarfehnia (coord)**
MDPH 607	*Physics of Medical Imaging* *	**A. Reader, G.B. Pike**
MDPH 609	*Radiation Biology*	**S. Lehnert, A. Syme**
MDPH 612	*Computers in Medical Imaging*	**H.J. Patrocinio, F. DeBlois**
MDPH 616D (Part II)	*Selected Topics in Medical Physics*	**E. Soisson, W. Parker**
563-625 D	*Thesis Research*	**(*individual supervisors*)**
Summer semester 2013		
MDPH 608	*Lab in Diag. Radiol. & Nucl. Med.*	**G. Hegyi, G. Stroian**
Fall semester 2013		
MDPH 601	*Radiation Physics* *	**J. Seuntjens**
MDPH 611	*Medical Electronics*	**P. Léger**
MDPH 613	*Health Physics*	**J. Kildea, M.D.C. Evans**
MDPH 614	*Physics of Diagnostic Radiology* *	**I. El Naqa**
MDPH 615	*Physics of Nuclear Medicine* *	**S. Devic**
MDPH 616D (Part I)	*Selected Topics in Medical Physics*	**E. Soisson, W. Parker**

* designates core courses

McGill University - Medical Physics Unit
Teaching Evaluation Summary - Winter 2013

Question	1	2	3	4	5	6	7	8	9	10	11	TOTAL	AVG
A. Course material and presentation													
1. Individual classes are well organized.	5.0	4.0	4.6	4.0	4.8	5.0	5.0	4.3	4.4	4.9	4.1	**50.12**	**4.6**
2. The instructor develops subject matter in a logical manner.	5.0	4.0	4.7	3.9	4.7	5.0	5.0	4.3	4.6	4.9	4.7	**50.62**	**4.6**
3. The instructor makes the material clear and interesting.	5.0	3.0	4.6	3.9	3.8	4.9	5.0	3.7	4.1	4.7	4.7	**47.38**	**4.3**
4. The instructor encourages and stimulates student thinking.	5.0	2.6	4.9	4.3	4.0	5.0	5.0	4.0	4.9	4.4	4.6	**48.57**	**4.4**
5. The instructor incorporates up-to-date information in the course.	5.0	3.8	4.9	4.6	4.8	5.0	5.0	4.4	4.4	4.9	4.6	**51.38**	**4.7**
6. The pace of the course is satisfactory.	5.0	3.1	4.4	4.0	4.7	4.8	4.8	4.1	4.0	4.3	4.1	**47.39**	**4.3**
7. The instructor speaks clearly.	5.0	3.4	4.7	4.1	4.8	5.0	5.0	4.0	4.9	4.7	4.3	**49.98**	**4.5**
8. The instructor makes good use of the blackboard or audiovisual aids.	5.0	3.3	4.4	4.0	4.8	5.0	5.0	4.0	4.6	4.7	4.8	**49.67**	**4.5**
B. Interaction with instructor													
9. The instructor welcomes questions in class.	5.0	4.3	4.9	4.4	4.5	5.0	5.0	4.4	5.0	4.9	4.7	**52.12**	**4.7**
10. The instructor is available for consultation outside classes.	5.0	4.4	4.8	4.5	5.0	4.9	5.0	4.3	4.8	4.9	4.5	**51.91**	**4.7**
11. Consultation with the instructor is helpful.	5.0	3.7	5.0	4.3	5.0	5.0	5.0	4.5	4.8	5.0	4.7	**51.92**	**4.7**
C. Assignments and examinations													
12. The mid-term exam questions are fair.			5.0			4.0		4.0	4.9		5.0	**22.86**	**4.6**
13. The mid-term exam marking and grading are fair.			3.5			4.0		4.0	4.0		3.0	**18.50**	**3.7**
14. Assignments contribute substantially to students' understanding of course material.		3.0	4.9	4.0		4.9	5.0	4.4	4.9	4.9	4.8	**40.63**	**4.5**
15. Assignments returned sufficiently promptly for students to benefit from corrections.		2.0	4.6	4.0		4.9	5.0	4.6	4.7	4.9	4.0	**38.59**	**4.3**
D. Overall assessment													
16. You would like to take another course from the same instructor.	4.8	2.7	4.9	3.7	4.0	4.9	5.0	3.9	3.9	4.7	4.6	**46.90**	**4.3**
17. The instructor's overall teaching ability is excellent.	5.0	2.9	4.9	3.7	4.2	5.0	5.0	3.7	4.1	4.7	4.6	**47.64**	**4.3**
Overall average course rating for instructor.	4.99	3.35	4.67	4.09	4.55	4.83	4.99	4.15	4.52	4.75	4.45		

Overall Average/5 4.46

McGill University - Medical Physics Unit
Teaching Evaluation Summary - Fall 2013

Question									TOTAL	AVG
A. Course material and presentation										
1. Individual classes are well organized.	5.0	4.7	4.9	4.8	4.9	4.9	5.0	4.9	**38.98**	**4.9**
2. The instructor develops subject matter in a logical manner.	5.0	4.6	5.0	4.8	4.1	4.7	5.0	4.7	**37.98**	**4.7**
3. The instructor makes the material clear and interesting.	5.0	4.3	4.9	4.5	3.9	4.6	5.0	4.9	**36.93**	**4.6**
4. The instructor encourages and stimulates student thinking.	5.0	5.0	5.0	5.0	5.0	4.9	5.0	5.0	**39.86**	**5.0**
5. The instructor incorporates up-to-date information in the course.	4.9	5.0	5.0	5.0	5.0	4.7	5.0	4.7	**39.29**	**4.9**
6. The pace of the course is satisfactory.	4.7	4.1	4.7	4.7	4.3	4.9	5.0	4.6	**36.95**	**4.6**
7. The instructor speaks clearly.	4.7	4.3	5.0	4.7	4.1	5.0	5.0	5.0	**37.81**	**4.7**
8. The instructor makes good use of the blackboard or audiovisual aids.	5.0	5.0	5.0	5.0	5.0	5.0	5.0	4.8	**39.83**	**5.0**
B. Interaction with instructor										
9. The instructor welcomes questions in class.	5.0	5.0	5.0	5.0	5.0	4.9	5.0	5.0	**39.86**	**5.0**
10. The instructor is available for consultation outside classes.	5.0	5.0	5.0	4.5	5.0	5.0	5.0	5.0	**39.50**	**4.9**
11. Consultation with the instructor is helpful.	5.0	5.0	5.0	4.5	4.8	5.0	5.0	5.0	**39.33**	**4.9**
C. Assignments and examinations										
12. The mid-term exam questions are fair.	5.0	4.0	5.0	4.7	4.3	4.4	5.0		**32.43**	**4.6**
13. The mid-term exam marking and grading are fair.	4.9	5.0	5.0	5.0	4.9	5.0	5.0		**34.71**	**5.0**
14. Assignments contribute substantially to students' understanding of course material.	4.9	4.6	5.0	4.5		4.6	5.0		**28.50**	**4.8**
15. Assignments returned sufficiently promptly for students to benefit from corrections.	5.0	4.9	5.0	5.0		5.0	5.0		**29.86**	**5.0**
D. Overall assessment										
16. You would like to take another course from the same instructor.	5.0	4.6	4.6	3.9	4.0	5.0	5.0	5.0	**37.00**	**4.6**
17. The instructor's overall teaching ability is excellent.	5.0	4.7	4.7	4.4	4.2	4.8	5.0	5.0	**37.82**	**4.7**
Overall average course rating for instructor.	4.94	4.69	4.92	4.71	4.56	4.84	5.00	4.89		

Overall Average/5 4.82

APPENDIX VII.

STUDENTS BEGINNING THEIR FIRST YEAR OF M.Sc. STUDIES IN MEDICAL PHYSICS IN SEPTEMBER 2013

(*major department and supervisor are indicated in parentheses; number following the major department indicates year of M.Sc. study in Fall 2013*)

1. **AHMED, Zaki** (MPU-1, *I. Levesque*)
   (title of thesis not yet available)
2. **CHRISTIANSEN, Eric** (MPU-1, *E. Vandervoort*)
   (title of thesis not yet available)
3. **MIRZAKHANIAN, Lalageh** (MPU-1, *S. Enger*)
   (title of thesis not yet available)
4. **O' GRADY, Kyle** (MPU-1, *J. Seuntjens*)
   (title of thesis not yet available)
5. **XING, Stella** (MPU-1, *I. Levesque*)
   (title of thesis not yet available)
6. **HSU, Jimmy** (MPU-1)
   (w/d December 2013)
7. **MILLER, Jeremy** (MPU-1)
   (w/d December 2013)

These students started their studies in September 2013, selected their supervisor(s) in May 2014, and are starting their M.Sc. thesis research work in Summer 2014.

STUDENTS BEGINNING THEIR SECOND YEAR OF M.Sc. STUDIES IN MEDICAL PHYSICS IN SEPTEMBER 2013

(*major departments and supervisors are indicated in parentheses; number following the major department indicates year of M.Sc. study in Fall 2013*)

1. **DESROCHES, Joannie** (MPU-2, *F. Leblond* (Ecole Polytechnique), *J. Seuntjens*)
   (title of thesis not yet available)
2. **GUILLET, Dominique** (MPU-2, *F. DeBlois*)
   (title of thesis not yet available)
3. **HICKLING, Susannah** (MPU-2, *I. El Naqa*)
   (title of thesis not yet available)
4. **MAGLIERI, Robert** (MPU-2, *J. Kildea*)
   (title of thesis not yet available)
5. **NOVOSAD, Philip** (MPU-2, *A. Reader*)
   (title of thesis not yet available)
6. **QUINTERO MATEUS, Chrystian** (MPU-2, *N. Tomic, J. Seuntjens, S. Devic*)
   (title of thesis not yet available)

These students began their M.Sc. studies in September 2012, completed the Fall and Winter didactic semesters of the 2012-2013 academic year, and are currently completing their M.Sc. thesis research. All are expected to submit their theses by Fall 2014.

STUDENTS COMPLETING THESIS REQUIREMENTS :

M.Sc. STUDIES IN MEDICAL PHYSICS IN FALL 2013

(*major departments and supervisors are indicated in parentheses; number following the major department indicates year of M.Sc. study in Fall 2013*)

1. **ALDOSARY, Ghada** (MPU-2, *A. Sarfehnia*)
   The measurement of the linear energy transfer of various radiotherapeutic beams in the clinic: A feasibility study
2. **ASGHARIZADEH, Saeid** (MPU-2, *A. Syme*)
   Patient specific quality assurance tool for high dose rate brachytherapy for rectal cancer patients
3. **BOURQUE, Alexandra** (MPU-2, *H. Bouchard, J-F. Carrier, J. Seuntjens*)
   A stoichiometric calibration method for dual energy computed tomography
4. **FAN, Michael** (MPU-2, *G. Stroian, F. DeBlois*)
   Web application in radiotherapy: The standardization of treatment planning and development of quantitative plan quality metrics
5. **GERARD, Ian** (MPU-2, *L. Collins*)
   An analysis of tracking error in image guided neurosurgery
6. **GHOLAMPOURKASHI, Sara** (MPU-2, *F. DeBlois*)
   Web-based system for quality assurance of radiation oncology equipment and procedures
7. **MULLINS, Joel** (MPU-2, *A. Syme*)
   Evaluation of eclipse dose calculations and TrueBeam couch positional accuracy in the Context of dynamic couch trajectories
8. **RENAUD, Marc-André** (MPU-2, *J. Seuntjens*)
   Pre-calculated track Monte Carlo dose calculation engine
9. **ZLATEVA, Yana** (MPU-2, *I. El Naqa*)
   Investigation of Cherenkov emission with applications in dosimetry, image guidance and Intensity modulation in radiotherapy

These students began their M.Sc. studies in September 2011, completed the Fall and Winter didactic semesters of the 2011-2012 academic year, and in Fall 2013 were completing M.Sc. thesis requirements.

APPENDIX VIII.

STUDENTS CURRENTLY WORKING ON Ph.D. PROJECTS IN MEDICAL PHYSICS IN SEPTEMBER 2013

(*major department and supervisors are indicated in parentheses*)

1. **ALONSO ORTIZ, Eva** (Physics – *G.B. Pike*)
   (title not yet available)
   Expected to submit thesis: date not yet available (began Ph.D. studies in September 2011)

3. **CARRIER-VALLIÈRES, Martin** (Physics – *I. El Naqa*)
   (title not yet available)
   Expected to submit thesis: date not yet available (began Ph.D. studies in September 2012)

4. **CONNELL, Tanner** (Physics – *J. Seuntjens)*
   The feasibility and accuracy of modulated electron radiation therapy delivery and the design of novel scattering foils
   Submitted initial thesis: February, 2014 (began Ph.D. studies in September 2009)

5. **LEE, Sangkyu** (Physics – *I. El Naqa, J. Seuntjens*)
   (title not yet available)
   Expected to submit thesis: date not yet available (began Ph.D. studies in September 2010)

6. **MARKEL, Daniel** (Physics – *I. El Naqa*)
   (title not yet available)
   Expected to submit thesis: date not yet available (began Ph.D. studies in September 2011)

7. **PAPACONSTADOPOULOS, Pavlos** (Physics – *J. Seuntjens*)
   (title not yet available)
   Expected to submit thesis: date not yet available (began Ph.D. studies in September 2011)

8. **PATER, Piotr** (Physics – *I. El Naqa, J. Seuntjens*)
   (title not yet available)
   Expected to submit thesis: date not yet available (began Ph.D. studies in September 2011)

9. **PEREZ, Jessica** (Biomedical Engineering – *I. El Naqa, J Nadeau*)
   (title not yet available)
   Expected to submit thesis: date not yet available (began Ph.D. studies in January 2012)

10. **RENAUD, James** (Physics –*J. Seuntjens*)
    (title not yet available)
    Expected to submit thesis: date not yet available (began Ph.D. studies in September 2012)

11. **RENAUD, Marc-André** (Physics –*J. Seuntjens, F. DeBlois*)
    (title not yet available)
    Expected to submit thesis: date not yet available (began Ph.D. studies in September 2012)

12. **TOLTZ, Allison** (Physics – *J. Seuntjens*)
    (title not yet available)
    Expected to submit thesis: date not yet available (began Ph.D. studies in September 2012)

13. **WATSON, Peter** (Physics – *J. Seuntjens*)
    (title not yet available)
    Expected to submit thesis: date not yet available (began Ph.D. studies in January 2013)

STUDENTS GRADUATING Ph.D.
IN MEDICAL PHYSICS IN MAY 2013

(*major department and supervisors are indicated in parentheses*)

CHUNG, Eunah (Physics – *J. Seuntjens*)
Development of radiation dosimetry techniques for nonstandard beam radiotherapy

APPENDIX IX.

PUBLICATIONS

by members of the Medical Physics Unit : 2013 calendar year (x 60)
(*names of MPU staff members are underlined, students are indicated by* †)

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1. S.D. Davis, W. Parker, M.D.C. Evans, *Using mean dose rate to compare relative dosimetric efficiency with respect to source type and source change schedules for HDR brachytherapy*, J. Appl. Clin. Med. Phys. **14**, 53–61 (2013).
2. G. Forestier, F. Lalys, D.L. Collins, J. Meixensberger, S. Wassef, T. Neumuth, B. Goulet, L. Riffaud, P. Jannin, *Multi-site study of surgical practice in neurosurgery based on surgical process models*, J. Biomed. Informatics **46**(5), 822-829 (2013).
3. J.S.W. Campbell, G.B. Pike, *Potential and limitations of diffusion MRI tractography for the study of language*, Brain and Language, July 2013. doi:10.1016/j.bandl.2013.06.007.
4. E. Klepousniotou, V.L. Gracco, G.B. Pike, *Pathways to lexical ambiguity: fMRI evidence for bilateral fronto-parietal involvement in language* processing, Brain & Language, October 2013 [Epub ahead of print].
5. P.A. MacDonald, H. Ganjavi, D.L. Collins, S. Karama, A.C. Evans, The Brain Development Cooperative Group, *Investigating the relation between striatal volume and IQ*, Brain Imaging Behav., Jun 30, 2013.
6. C. Haegelen, P. Coupé, V.S. Fonov, N. Guizard, P. Jannin, X. Morandi, D.L. Collins, *Efficiency of automated segmentation of basal ganglia and deep brain structures on MRI of patients with Parkinson's disease*, Intl. J. Comp. Asst. Radiol. Surg. **8**(1), 99-110 (2013).
7. S. Kafouri, M. Kramer, G. Leonard, M. Perron, G.B. Pike, L. Richer, R. Toro, S. Veillette, Z. Pausova, T. Paus, *Breastfeeding and brain structure in adolescence*, Intl. J. Epidemiology **42**(1), 150-9 (2013).
8. C. Haegelen, P. Perucca, C.-E. Châtillon, L. Andrade-Valença, R. Zelmann, J. Jacobs, D. L. Collins, F. Dubeau, A. Olivier, J. Gotman, *High-frequency oscillations, extent of surgical resection and surgical outcome in drug-resistant focal epilepsy*, Epilepsia **54**(5), 848-57 (2013).
9. G. Landry, F. deBlois, F. Verhaegen, *ImaSim, a software tool for basic education of medical x-ray imaging in radiotherapy and radiology*, Front Physics **1**, 22 (2013).
10. R. Schirrmacher, V. Bernard-Gauthier, A.J. Reader, J.P. Soucy, E. Schirrmacher, B. Wängler, C. Wängler, *Design of brain imaging agents for positron emission tomography: Do large bioconjugates provide an opportunity for in vivo brain imaging?* Future Medicinal Chemistry **5**(14), 1621-1634 (2013).
11. M.M. Chakravarty, P. Steadman, M.C. van Eede, R.D. Calcott, V. Gu, P. Shaw, A. Raznahan, D.L. Collins, J.P. Lerch. *Performing label-fusion based segmentation using multiple automatically generated templates*, Human Brain Mapping **34**(10), 2635-54 (2013).
12. B. Axelsson, C.E. de Almeida, H. Delis, W.R. Hendee, I.D. McLean, B. Moftah, J. Seuntjens, S. Tabakov, A.K. Toutaoui, W. Van der Putten, D. van der Merwe, *Postgraduate medical physics academic programmes*, endorsed by the International Organization for Medical Physics (IOMP) Training Course Series 56, International Atomic Energy Agency (IAEA), Vienna, Austria, December 2013, pp. 1-27, ISSN1018-5518.
13. L. Rittner, J.S.W. Campbell, P.F. Freitas, S. Appenzeller, G.B. Pike, R.A. Lotufo, *Analysis of scalar maps for the segmentation of the corpus callosum in diffusion tensor fields*, J. Math. Imaging & Vision **45**, 214-226 (2013). DOI 10.1007/s10851-012-0377-4.
14. D. García-Lorenzo, S. Francis, S. Narayanan, D.L. Arnold, D.L. Collins, *Review of automatic segmentation methods of multiple sclerosis white matter lesions on conventional magnetic resonance imaging*, Med. Image Analysis **17**(1), 1-18 (2013).
15. J. Seuntjens, E. Chung†, E. Soisson, Reply to *Comment on "Dose homogeneity specification for reference dosimetry of non-standard fields"*, Med. Phys. **39**, 407-414 (2012); Med. Phys. (Letters) **40**(3), 037102 (2013).

16. J. Morin, D. Béliveau-Nadeau, E. Chung†, J. Seuntjens, D. Thériault, L. Archambault, S. Beddar, L. Beaulieu, *A comparative study of small field total scatter factors and dose profiles using plastic scintillation detectors and other stereotactic dosimeters: The case of the CyberKnife*, Med. Phys. **40**(1), 011719-1-011719-10, (2013).
17. J. Renaud†, D. Marchington, J. Seuntjens, A. Sarfehnia, *Development of a graphite probe calorimeter for absolute clinical dosimetry*, Med. Phys. (Letters) **40**(2), 020701 (2013).
18. J. Verhaeghe, A.J. Reader, *Accelerated PET water activation acquisition with signal separation methodology*, Med. Phys. **40**(3), art no. 031909 (2013).
19. B. White, T. Zhao, J. Lamb, S. Wuenschel, J. Bradley, I. El Naqa, D. Low, *Distribution of lung tissue motion during free breathing*, Med. Phys. **40**(4), (2013).
20. P. Papaconstadopoulos†, J. Seuntjens, *A source model for modulated electron radiation therapy using dynamic jaw movements*, Med. Phys. **40**(5), 051707-1-051070-12 (2013).
21. E. Chung†, S.D. Davis, J. Seuntjens, *Experimental analysis of general ion recombination in a liquid-filled ionization chamber in high-energy photon beams*, Med. Phys. **40**(6), 062104 (7pp) (2013). http://online.medphys.org/resource/1/mphya6/v40/i6/p062104_s1?view=fulltext
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24. C.L. Tardif, B.J. Bedell, S.F. Eskildsen, D.L. Collins, G.B. Pike, *Quantitative magnetic resonance imaging of cortical multiple sclerosis pathology*, Multi. Scle. Int. doi: 10.1155/2012/742018. Epub 2012, November 18, 2013.
25. D. De Nigris, D.L. Collins, T. Arbel, *Fast rigid registration of pre-operative magnetic resonance images to intra-operative ultrasound for neurosurgery based on high confidence gradient orientations*, Neuroimage **8**(4), 649-661 (2013).
26. S.F. Eskildsen, P. Coupé, D. García-Lorenzo, V.S. Fonov, J.C. Pruessner, D.L. Collins, *Prediction of Alzheimer's disease in subjects with mild cognitive impairment from the ADNI cohort using patterns of cortical thinning*, Neuroimage **65**, 511-21 (2013).
27. M. Albaugh, S. Ducharme, D.L. Collins, K. Botteron, R. Althoff, A.C. Evans, S. Karama, J. Hudziak, *Evidence for a cerebral cortical thickness network anti-correlated with amygdalar volume in healthy youths: Implications for the neural substrates of emotion regulation*, Neuroimage **71**, 42-9 (2013).
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29. B. Aubert-Broche, V.S. Fonov, D. García-Lorenzo, A. Mouiha, N. Guizard, P. Coupé, S.F. Eskildsen, D.L. Collins, *A new method for structural volume analysis of longitudinal brain MRI data and its application in studying the growth trajectories of anatomical brain structures in childhood*, Neuroimage **82C**, 393-402 (2013).
30. M. Boccardi, M. Bocchetta, L.G. Apostolova, G. Preboske, N. Robitaille, P. Pasqualetti, D.L. Collins, S. Duchesne, C.R. Jack Jr, G.B. Frisoni, *Establishing magnetic resonance images orientation for the EADC-ADNI manual hippocampal segmentation protocol*, Neuroimaging, Nov 26, 2013. doi: 10.1111/jon.12065.
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resolution PET [18F]Fallypride study in cocaine dependent participants, Neuropsychopharm. **38**(9), 1780-1788 (2013).

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36. P. Gravel, J. Verhaeghe, A.J. Reader, *3D PET image reconstruction including both motion correction and registration directly into an MR or stereotaxic spatial atlas*, Phys. Med. Biol. **58**, 105-126 (2013).
37. J. Verhaeghe, A.J. Reader, *Simultaneous water activation and glucose metabolic rate imaging with PET*, Phys. Med. Biol. **58**, 393-411 (2013).
38. S. Aldelaijan, A. Nobah, G Alsbeih, B. Moftah, I. Aldahlawi, A. Alzahrany, N. Tomic, S. Devic, *Dosimetry of biological irradiations using radiochromic films*, Phys. Med. Biol. **58**, 3177-3189 (2013).
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40. J.V. Manjon, P. Coupe, L. Concha, A. Buades, D.L. Collins, M. Robles, *Diffusion weighted image denoising using overcomplete local PCA*, Public Library of Science (PLoS) One, **8**(9), e73021 (2013). doi: 10.1371/journal.pone.0073021.
41. S.D. Tran, Y. Liu, D. Xia, O.M. Maria†, S. Khalili, R.W-Y. Wang, V-H. Quan, S. Hu, J. Seuntjens, *Paracrine effects of bone marrow soup restore organ function, regeneration, and repair in salivary glands damaged by irradiation*, PLoS One, PLOS ONE PONE-D-13-00873R1 10.1371/journal.pone.0061631 – sent to production.
42. M.D.C. Evans, C. Hudon, E.B. Podgorsak, C.R. Freeman, *Institutional experience with a rotational total skin electron irradiation technique: A three-decade review (1981-2012)*, Reports of Practical Oncology & Radiotherapy, online June 17, 2013.
43. R. Al-Wassia, H. Bahig, E. Poon, W. Parker, C.R. Freeman, *Daily setup uncertainty analysis for craniospinal irradiation using helical tomotherapy*, Practical Rad. Oncol. **3** (4), 349-355 (2013).
44. Y. Cui, J.M. Galvin, W. Parker, S. Breen, F.F. Yin, J. Cai, L.S. Papiez, X.A. Li, *Implementation of remote 3-dimensional image guided radiation therapy quality assurance for Radiation Therapy Oncology Group clinical trials*, Intl. J. Radn. Oncol. Biol. Phys. **85** (1), 271-277 (2013).
45. N. Patel, S. Faria, F. Cury, M. David, M. Duclos, G. Shenouda, R. Ruo, L. Souhami, *Hypofractionated radiation therapy (66 Gy in 22 fractions at 3 Gy per fraction) for favorable-risk prostate cancer: Long-term outcomes*, Intl. J. Radiat. Oncol. Biol. Phys. **86**(3), 534-9 (2013).
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51. S. Quinlan-Davidson, T. AlMahmoud, R. Al-Wassia, M.D.C. Evans, G. Ph.D, S. Callejo, C. Edelstein, G. Shenouda, *Intraoperative sonographically assisted radioactive iodine 125 plaque brachytherapy for choroidal melanoma: visual acuity outcome*, J. Ultrasound Med. **32**(6), 995-1001, (2013).

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55. S. Bériault, M. Archambault-Wallenburg, A.F. Sadikot, D.L. Collins, G.B. Pike, *Automatic markov random field segmentation of susceptibility-weighted MR venography*, MICCAI-CLIP 2013, LNCS.
56. R. Zelmann, S. Bériault, K. Mok, C. Haegelen, J.A. Hall, A. Olivier, G.B. Pike, D.L. Collins, *Automatic optimization of depth electrode trajectory planning*, MICCAI-CLIP 2013, LNCS.
57. S. Bériault, S. Drouin, A.F. Sadikot, Y. Xiao, D.L. Collins, G.B. Pike, *A prospective evaluation of computer-assisted deep brain stimulation trajectory planning*, MICCAI-CLIP 2012, LNCS, **7761**, pp. 42-49, Springer, Heidelberg (2013).
58. Z. Karimaghaloo, D.L Arnold, D.L. Collins, T. Arbel, *Adaptive voxel, texture and temporal CRF for detection of gad-enhancing lesions in multiple sclerosis in brain MRI*, MICCAI 2013 Workshop on Clinical Image-based Procedures: Translational Research in Medical Imaging.
59. N. Subanna, D.L. Collins, D. Precup, T. Arbel, *Hierarchical probabilistic Gabor and MRF segmentation of brain tumours in MRI*, MICCAI 2013 Workshop on Clinical Image-based Procedures: Translational Research in Medical Imaging.
60. R. Zelman, D.L. Collins, *Automatic optimization of depth electrode trajectory planning*, MICCAI 2013 Workshop on Clinical Image-based Procedures: Translational Research in Medical Imaging.

APPENDIX X.

PUBLISHED ABSTRACTS

by members of the Medical Physics Unit : 2013 calendar year (x 98)
(names of MPU staff members are underlined, students are indicated by †)

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1. S.D. Davis, W. Parker, M.D.C. Evans, *Using integral activity to compare relative dosimetric efficiency with respect to source type and source change schedules for high-dose-rate brachytherapy*, Brachytherapy **12**(1), S41–S42 (2013).
2. O.M. Maria, A.M. Maria, N. Ybarra, K. Jeyaseelan, S. Lee†, J. Perez†, S. Lehnert, S. Faria, M. Serban, J. Seuntjens, I. El Naqa, *The role of stem-like cells in regional radiosensitivity of the lung*, J. Eur. Soc. Radiother. Oncol. (ESTRO) **108**(1), S5, abs 13 (2013).
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6. A. Bourque, J-F. Carrier, and H. Bouchard, (2013) *Development and Comparison of Tissue Characterization Formalisms for Dual Energy Computed Tomography,* Journal of the European Society for Radiotherapy and Oncology 108(Supplement 1), S15, abs.
7. P. Pater, J Seuntjens, M. Bernal, and I. EL Naqa, (2013) *A New Probabilistic Model for DNA Strand Breaks Simulation Using Monte Carlo Track Structures,* Journal of the European Society for Radiotherapy and Oncology 108(Supplement 1), S15, abs. 38.
8. A. Syme, E. Mitrou, and J. Quantin, (2013) *Factors Affecting Plan Complexity and Patient Setup Sensitivity of VMAT Treatments of Head and Neck Cancer,* Journal of the European Society for Radiotherapy and Oncology 108(Supplement 1), S31, abs. 80.
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10. Y. Zlateva, I. EL Naqa, M. Evans, and J. Larkin, (2013) *Preliminary study of Cherenkov emission by radiotherapy treatment beams for potential application as optical dosimeter,* Journal of the European Society for Radiotherapy and Oncology 108(Supplement 1), S54, abs. 141.
11. E. Soisson, J. Seuntjens, and M. Evans, (2013) *Validating Small Field Vendor-Standard Stereotactic High Dose Rate 6Mv Beam Data Using IC10 and Lion Chambers,* Journal of the European Society for Radiotherapy and Oncology 108(Supplement 1), S55, abs. 142.
12. G Aldosary, J Seuntjens, and A Sarfehnia, (2013) *Change of Ionization Chamber Correction Factors (Ppol , Pion, KWall) with Chamber Walls of Different Materials in Continuous and Pulsed Beams*, Journal of the European Society for Radiotherapy and Oncology 108(Supplement 1), S55, abs. 142.
13. M.D.C. Evans, S.D. Davis, J. McCaffrey, and. B. Downton, (2013) *Survey Meter Calibration: Pitfalls and Sweet Spots*, Journal of the European Society for Radiotherapy and Oncology 108(Supplement 1), S61, abs. 160.
14. J. Kildea, J. Dubeau, M. Evans, R. Khatchadourian, A. Licea, J. Seuntjens, and S. Witharana, (2013) *Validation of Monte Carlo Simulations of Neutron Fluence in the Vicinity of a Medical Linear Accelerator Using Spectral Measurements*, Journal of the European Society for Radiotherapy and Oncology 108(Supplement 1), S101, abs. 270.

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17. J. Mullins, J. Seuntjens, F. DeBlois, and A. Syme, (2013) *Evaluation of Eclipse DMLC Dose Calculations in the Context of Dynamic Couch Trajectory Treatments*, Journal of the European Society for Radiotherapy and Oncology 108(Supplement 1), S104, abs. 278.
18. D. Markel, H. Zaidi, and I. El Naqa, (2013) *Novel Multimodality Segmentation Using Level Sets and Jensenn-Renyi Divergence*, Journal of the European Society for Radiotherapy and Oncology 108(Supplement 1), S108, abs. 288.
19. M. Fan, F. DeBlois, K. Sultanem, and G. Stroian, (2013) *A Novel Web-Based Tool for Quantification of VMAT/IMRT Treatment Plan Quality*, Journal of the European Society for Radiotherapy and Oncology 108(Supplement 1), S112, abs. 299.
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21. M.-A. Renaud, F. DeBlois, (2013) *WebTPS: A Web Application for Monte Carlo Plan Recalculation*, Journal of the European Society for Radiotherapy and Oncology 108(Supplement 1), S113, abs. 300.
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23. N. Shin, A. Toltz, C. Laude, D. Roberge, C. Freeman, J. Seuntjens, and W. Parker, (2013) *Risk of Secondary Solid Cancers for Young Patients Receiving Radiotherapy for Localized CNS Tumours Comparing SRS, 3D-CRT, Photon IMRT and IMPT*, Journal of the European Society for Radiotherapy and Oncology 108(Supplement 1), S118, abs. 314.
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28. D. Markel†, I. El Naqa, H Zaidi, *Registration/segmentation for adaptive radiotherapy using the Jensen Renyi divergence,* Med. Phys. **40**(6), 175.
29. A Bourque, J Carrier, and H Bouchard, (2013) *Validation of Two Mathematical Formalisms for Tissue Characterization in Dual Energy Computed Tomography,* Med. Phys. **40**(6), 193.
30. E Poon, G Shenouda, and W Parker, (2013) *Dosimetric Benefits of Replanning for IMRT Treatment of Head and Neck Cancer,* Med. Phys. **40**(6), 199.
31. G. Aldosary†, J. Seuntjens, A. Sarfehnia, *Influence of chamber wall material on ionization chamber absorbed dose energy response: A numerical and experimental study*, Med. Phys. **40**(6), 220 (2013).
32. G. Aldosary†, J. Seuntjens, A. Sarfehnia, *Change of ionization chamber correction factors (Ppol, Pion, KWall) with chamber walls of different materials in continuous and pulsed beams*, Med. Phys. **40**(6), 222 (2013).
33. G. Twork†, A. Sarfehnia, (2013) *Evaluation of the Dose-Rate Dependency of GAFCHROMIC EBT3,* Med. Phys. **40**(6), 223.
34. A. Toltz†, N. Shin†, C. Laude, D. Roberge, C.R. Freeman, J. Seuntjens, W. Parker, *Prediction of secondary cancer in pediatric, adolescent, and young adult patients receiving abdominal external beam radiotherapy,* Med. Phys. **40**(6), 269 (2013).
35. P. Pater†, J. Seuntjens, M. Bernal, I. El Naqa, *Electronic equilibrium in RBE of DSB induction in Monte Carlo simulations of low energy photon and electron track structures,* Med. Phys. **40**(6), 275 (2013).

36. V. Thakur, R. Ruo, J. Seuntjens, W. Parker, R. Doucet, E. Soisson, *Delivery accuracy of stereotactic radiosurgery with tomotherapy using treatment planning system version V4.0 and the recent upgrade V4.2,* Med. Phys. **40**(6), 304 (2013).
37. K. Zerouali, M-A. Renaud†, F. DeBlois, H. Bouchard, J. Carrier, *Implementation of clinical Monte Carlo dose calculation for CyberKnife on a web-based treatment planning system WebTPS*, Med. Phys. **40**, 319 (2013).
38. M. Fan†, F. DeBlois, K. Sultanem, G. Stroian, *A novel web-based tool for quantification of VMAT/IMRT treatment plan quality*, Med. Phys. **40**, 395 (2013).
39. J. Mullins†, J. Seuntjens, F. DeBlois, A. Syme, *Preliminary measurements towards radiation therapy involving dynamic couch trajectories*, Med. Phys. **40**, 444 (2013).
40. S. Lee†, J. Bradley, N. Ybarra, K. Jeyaseelan, J. Seuntjens, I. El Naqa, *Assessment of different machine learning techniques for multivariate radiation pneumonitis modeling,* Med. Phys. **40**(6), 454 (2013).
41. S. Asgharizadeh†, A. Syme, F. DeBlois, J. Seuntjens, I. El Naqa, H. Bekerat†, S. Devic, *Patient specific quality assurance tool in rectal brachytherapy,* Med. Phys. **40**(6), 467 (2013).
42. M. Vallieres†, C.R. Freeman, S. Skamene, I. El Naqa**,** *Joint FDG-PET/MR imaging for the early prediction of tumor outcomes,* Med. Phys. **40**(6), 477 (2013).
43. Y. Zlateva†, I. El Naqa, N. Quitoriano, (2013) *Red spectral shift of Cherenkov emission with applications in image-guided and intensity-modulated radiation therapy,* Med. Phys. **40**(6), 504 (2013).
44. M. Vallieres†, A Kumar, K Sultanem, I. El Naqa, (2013) *FDG-PET imaging features can predict treatment outcomes in head and neck cancer,* Med. Phys. **40**(6), 519 (2013).
45. M. Popovic, E. Poon, W. Parker, F. Cury, G. Shenouda, *Three-dimensional rendering of mandibular dose distribution: An aid in long-term dental care*, Int. J. Radiat. Oncol. Biol. Phys. **87**(2), S465-S466 (2013).
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48. M. Fan†, G. Stroian, F. DeBlois, *Design of a novel django web-based tool for IMRT/VMAT Treatment Plan Verification and Evaluation,* Intl. J. Radiat. Oncol. Biol. Phys. **87**(2), S625 (2013).
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51. K. Jeyaseelan, J. Coates†, N. Ybarra, M. David, S. Faria, L. Souhami, G. Shenouda, F. Cury, M. Duclos, I. El Naqa, *Copy number variations as predictors of late toxicities in prostate cancer*, Int. J. Radiat. Oncol. Biol. Phys. **87**(2), S668 (2013).
52. N. Shin, A. Toltz†, C. Laude, D. Roberge, C.R. Freeman, J. Seuntjens, W. Parker, *Risk of radiation-induced late effects for pediatric patients receiving craniospinal irradiation comparing 3D-CRT, IMRT, and IMPT*, Int. J. Radiat. Oncol. Biol. Phys. **87**(2), S691 (2013).
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54. A. Syme, E. Mitrou, J. Quantin, *Factors affecting plan complexity and patient setup sensitivity of VMAT treatments of head and neck cancer*, Radiother. Oncol. **108**(S1)**,** S31-32 (2013).
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56. M.D.C. Evans, S. Davis, B. Downton, J. McCaffrey, J. Seuntjens, *Survey meter calibration: Pitfalls and sweetspots*, Radiother. Oncol. **108** (1), S61 (2013).
57. J. Kildea, J. Dubeau, M.D.C. Evans, R. Katchadourian, A. Licea, J. Seuntjens, S. Witharana, *Validation of Monte Carlo simulations of neutron fluence in the vicinity of a medical linear accelerator using spectral measurements*, Radiother. Oncol. **108**(1), S101 (2013).
58. S. Kashi†, G. Stroian, F. DeBlois, *A web-based system for quality assurance of radiation oncology equipment and procedures*, Radiother. Oncol. **108** (S1), S104-105 (2013).
59. J. Mullins†, J. Seuntjens, F. DeBlois, A. Syme, *Evaluation of Eclipse DMLC dose calculations in the context of dynamic couch trajectory treatments*, Radiother. Oncol. **108** (S1), S104-105 (2013).

60. H.J. Patrocinio, L. Santos Herbst, R. Ruo, *Monte Carlo algorithm as a tool for verifying monitor unit calculations in intensity modulated stereotactic radiosurgery*, Radiother. Oncol. **108**(1), S121 (2013).
61. P. Watson, E. Mainegra-Hing, N. Tomic, J. Seuntjens, *Scatter artifact correction in CBCT images*, Radiother. Oncol. **108**(S1), (2013).
62. I. El Naqa, *Statistical methods for fitting of response/biological models to clinical data*, ESTRO Forum, Geneva, April 2013 (Invited teaching lecture).
63. A. Berman, R. Hoge, G.B. Pike, *The impact of dissolved oxygen in blood on hyperoxia-based BOLD calibration,* Proc. 21st ISMRM, Salt Lake City, UT, April 22-26, 2013, #0851.
64. N. Stikov, A. Giorgio, J.S.W. Campbell, E.L. Mazerolle, N. De Stefano, G.B. Pike, *Magnetization transfer ratio tractometry in multiple sclerosis*, Proc. 21st ISMRM, Salt Lake City, UT, April 22-26, 2013.
65. J.S.W. Campbell, G.B. Pike, *How well does the residual bootstrap predict scan-rescan repeatability of fibre orientation measurements from spherical deconvolution diffusion MRI?* Proc. 21st ISMRM, Salt Lake City, UT, April 22-26, 2013.
66. T. Zhang, J.M. Pauly, I.R. Levesque, *Accelerating parameter mapping with a locally low rank constraint,* 21st Scientific Meeting of the ISMRM, Salt Lake City, UT, April 22-26, 2013.
67. A. Berman, Y. Ma, R. Hoge, G.B. Pike, *The effect of dissolved oxygen on the magnetic susceptibility of* blood, Proc. 21st ISMRM, Salt Lake City, Utah, April 22-26, 2013.
68. J. Kildea, T. Hijal, W. Parker, J. Seuntjens, *Database technology in radiation therapy: Comprehensive clinical QA*, International Conference on Computers in Radiotherapy (ICCR), Melbourne, Australia, May 6-9, 2013.
69. J. Kildea, C.R. Freeman, W. Parker, *Standardisation of CSI treatment planning and evaluation using a DVH registry*, 2013 Congress of the Pediatric Radiation Oncology Society (PROS), Louisville, KY, May 8-10, 2013.
70. J. Dubeau, S. Witharana, A. Licea, Y. Picard, M.D.C. Evans, J. Kildea, W. Parker, B. Guérin, E. Berthelette, *The measurement of neutron energy spectra in the high energy neutron flux environment of medical accelerators using the nested neutron spectrometer*, Annual scientific meeting of the Canadian Radiation Protection Association (CRPA), Sherbrooke, QC, May 27-30, 2013.
71. M.D.C. Evans, J. Kildea, W. Parker, *Linear accelerator bunker design, construction and management in a hospital setting (1983–2013)*, Annual scientific meeting of the Canadian Radiation Protection Association (CRPA), Sherbrooke, QC, May 27-30, 2013, p 45.
72. I. El Naqa, *Systems radiobiology: At the intersection of physics and biolog*y, CAP, Montreal, QC, May 2013 (Invited lecture).
73. D. Markel†, I. El Naqa, H. Zaidi, *Novel multimodality segmentation using level sets and Jensen-Renyi divergence*, CAM, Waterloo, ON, May 2013.
74. Y. Zlateva†, I. El Naqa, N. Quitoriano, *Red spectral shift of Cherenkov emission with applications in image-guided and intensity-modulated radiation therapy*, CAM, Waterloo, ON, May 2013.
75. N. Stikov, A. Giorgio, J.S.W. Campbell, E.L. Mazerolle, N. De Stefano, G.B. Pike, *Imaging the g-ratio in-*vivo, in ISMRM White Matter study group workshop on *MS as a full brain disease*, London, England, June 2013.
76. D. Markel†, I. El Naqa, H. Zaidi, *Registration/segmentation for adaptive radiotherapy using the Jensen Renyi divergence*, AAPM, Indiana, IN, July 2013.
77. Y. Zlateva†, I. El Naqa, N. Quitoriano, *Red spectral shift of Cherenkov emission with applications in image-guided and intensity-modulated radiation therapy*, AAPM, Indiana, IN, July 2013.
78. P. Pater†, J. Seuntjens, M. Bernal, I. El Naqa, *Electronic equilibrium in RBE of DSB induction in Monte Carlo simulations of low energy photon and electron track structures*, AAPM, Indiana, IN, July 2013.
79. S. Lee†, J. Bradley, N. Ybarra, K. Jeyaseelan, J. Seuntjens, I. El Naqa, *Assessment of different machine learning techniques for multivariate radiation pneumonitis modeling*, AAPM, Indiana, IN, July 2013.
80. M. Vallieres†, A. Kumar, K. Sultanem, I. El Naqa, *FDG-PET imaging features can predict treatment outcomes in head and neck cancer*, AAPM, Indiana, IN, July 2013.
81. M. Vallieres†, C.R. Freeman, S. Skamene, I. El Naqa, *Joint FDG-PET/MR imaging for the early prediction of tumor outcomes*, AAPM, Indiana, IN, July 2013.
82. Y. Zlateva†, I. El Naqa, M.D.C. Evans, *Preliminary study of Cherenkov emission by radiotherapy treatment beams for potential applications as optical dosimeter*, COMP-CARO, Montreal, QC, September 2013.
83. D. Markel†, I. El Naqa, H. Zaidi, *Novel multimodality segmentation using level sets and Jensen-Renyi divergence*, COMP-CARO, Montreal, QC, September 2013.

84. P. Pater†, J. Seuntjens, M Bernal, I. El Naqa, *A new probabilistic model for dna strand breaks simulation using Monte Carlo track structures*, COMP-CARO, Montreal, QC, September 2013.
85. M. Vallières†, C.R. Freeman, S.R. Skamene, I. El Naqa, Prediction of tumor outcomes using joint FDG-PET/MR diagnostic imaging features, COMP-CARO, Montreal, QC, September 2013.
86. K. Jeyaseelan, J. Coates†, N. Ybarra, M. David, S. Faria, L. Souhami, G. Shenouda, F. Cury, M. Duclos, I. El Naqa, *Copy number variations as predictors of late toxicities in prostate cancer*, COMP-CARO, Montreal, QC, September 2013.
87. O.M. Maria, A.M. Maria, N. Ybarra, K. Jeyaseelan, S. Lee†, J. Perez†, S. Lehnert, S. Faria, M. Serban, J. Seuntjens, I. El Naqa, *The role of stem-like cells in regional radiosensitivity of the lung*, COMP-CARO, Montreal, QC, September 2013.
88. J. Kildea, R. Maglieri†, M.D.C. Evans, J. Seuntjens, A. Licea, J. Dubeau, S.S. Hakmana Witharana, *Validation of Monte Carlo simulations of neutron fluence in the vicinity of a medical linear accelerator using spectral measurements*, COMP-CARO Joint Scientific Meeting, Montreal, QC, September 2013.
89. K. Jeyaseelan, J. Coates†, N. Ybarra, M. David, S. Faria, L. Souhami, G. Shenouda, F. Cury, M. Duclos, I. El Naqa, *Copy number variations as predictors of late toxicities in prostate cancer*, ASTRO, Atlanta, GA, September 2013.
90. N. Ybarra, G. Shenouda, K. Jeyaseelan, I. El Naqa, *Radiosenstivity of head and neck squamous cell carcinoma derived cells lines and normal tissue cells*, ASTRO, Atlanta, GA, September 2013.
91. O.M. Maria, A.M. Maria, N. Ybarra, K. Jeyaseelan, S. Lee†, J. Perez†, S. Lehnert, S. Faria, M. Serban, J. Seuntjens, I. El Naqa, *The role of stem-like cells in regional radiosensitivity of the lung*, ASTRO, Atlanta, GA, September 2013.
92. M. Vallières†, A. Kumar, K. Sultanem, I. El Naqa, *FDG-PET Image-derived features can determine HPV status in head and neck cancer*, ASTRO, Atlanta, GA, September 2013.
93. M. Bieth, Lombaert, A.J. Reader, K. Siddiqi, *Atlas construction for dynamic (4D) PET using diffeomorphic transformations*, Oral presentation, MICCAI, Nagoya, Japan, September 2013.
94. M. Vallières†, I. El Naqa, FDG-PET/MR textural features for the early assessment of tumor aggressiveness, AQPMC, Quebec City, QC, November 2013.
95. A. Gauvin, S. Laframboise, G. Ruthman, *Strategies for foreign study ingestion by a PACS interfaced to a XDS affinity domain*, RSNA, Chicago, IL, December 2013.
96. A. Berman, Y. Ma, R. Hoge R, G.B. Pike, *The effect of dissolved oxygen on the magnetic susceptibility of* blood, Proc. 2nd Workshop on "MRI Phase Contrast & Quantitative Susceptibility Mapping", Ithaca, NY, 2013, #16.
97. Y. Zlateva†, I. El Naqa, N. Quitoriano, *Preliminary study and red spectral shift of Cherenkov emission with applications in image-guided and intensity-modulated radiation therapy*, Biomedical Engineering Symposium, Montreal Neurological Institute, Montreal, QC, 2013.
98. J. Perez†, N. Ybarra, S.H. Park, J. Nadeau, I. El Naqa, *Optimization of optical labeling methods for tracking of stem cells in post-radiotherapy lung injury,* Biomedical Engineering Symposium, 2013 MNI, Montreal.

APPENDIX XI.

INVITED PRESENTATIONS

by members of the Medical Physics Unit : 2013 calendar year (x 29)
(in multiple author entries, the author who presented the paper is shown with an asterisk)

1. I. El Naqa, *System-based approaches for radiotherapy bioinformatics and outcomes modeling*, Toronto, ON, January 9, 2013.
2. A. Gauvin, M. Iannantuono, *Ordonnance SIC et imagerie médicale: Expérience du CUSM*, Agence de Montréal, Montreal, QC, January 10, 2013.
3. G.B. Pike, *Cerebral hemodynamics and the BOLD functional MRI response*, Invited speaker, Hotchkiss Brain Institute, University of Calgary, Calgary, AB, January 10, 2013.
4. G.B. Pike, *Recent advances in quantitative analysis workshop*, NSERC-CREATE – Medical Imaging Analysis Workshop, Montreal, QC, February 15, 2013.
5. I. El Naqa, *Monte Carlo role in radiobiological modelling of radiotherapy outcomes*, SACR, Cochin, India, February 23-24, 2013.
6. I. El Naqa, *Hybrid imaging for radiotherapy*, Cochin, India, February 23-24, 2013.
7. I. El Naqa, *Application and QA of radiobiological models for radiotherapy treatment planning*, KHCC, Amman, Jordan, February, 2013.
8. H. Patrocinio, *An Introduction to IGRT*, 1 week Invited Professor Visit, IPOLFG, Lisbon, Portugal, February 25-28, 2013.
9. H. Patrocinio, *IMRT: The good, the bad and the ugly*, 1 week Invited Professor Visit, IPOLFG, Lisbon, Portugal, February 25-28, 2013.
10. H. Patrocinio, *The evolution of lung SBRT at McGill*, 1 week Invited Professor Visit, IPOLFG, Lisbon, Portugal, February 25-28, 2013.
11. H. Patrocinio, *Special techniques at McGill*, 1 week Invited Professor Visit, IPOLFG, Lisbon, Portugal, February 25-28, 2013.
12. J. Seuntjens, *Reference dosimetry of small and composite radiation therapy fields*, University of Pennsylvania, Philadelphia, April 2, 2013.
13. I. El Naqa, *Statistical methods for fitting of response/biological models to clinical data*, ESTRO Forum, Geneva, Switzerland, April 22, 2013.
14. I. El Naqa, *Machine learning as new tool for predicting radiotherapy response: Current challenges and future directions*, Laboratoire d'Informatique de Paris-Nord, Paris, France, April 25, 2013.
15. I. El Naqa, *Machine learning methods for radiotherapy*, Maastricht, Netherlands, April 26, 2013.
16. I. El Naqa, *Systems radiobiology: At the intersection of physics and biology*, Canadian Association of Physicists (CAP), Montreal, QC, May 27, 2013.
17. G.B. Pike, *The physiological underpinnings of the BOLD fMRI response*, Quebec Bioimaging Network, Plenary Speaker at fMRI Summer Workshop, Montreal, QC, August 21, 2013.
18. H. Patrocinio, Uncertainties in radiation therapy, Annual Congress of the ABFM, São Pedro, SP, Brazil, August 2013.
19. I. Levesque, *MRI in radiation oncology practice*, Canadian Organization of Medical Physicists - Canadian College of Physicists in Medicine (COMP-CCPM) Continuing Education Event, COMP-CARO Joint Scientific Meeting, Montreal, QC, September 18, 2013.
20. W. Parker, S. Devic, I. Levesque, *Role of MRI in RT treatment simulation*, Refresher course on "Advances in Image Guided Radiotherapy", COMP-CARO Joint Scientific Meeting, Montreal, QC, September 18-21, 2013.
21. W. Parker, *Basic treatment planning*, Resident Refresher Course, COMP-CARO Joint Scientific Meeting, Montreal, QC, September 18-21, 2013.
22. M. Popovic, *Intraoperative radiotherapy with INTRABEAM®: Overview of clinical benefits and initial implementation challenges*, Friday Noon Seminar Series, Medical Physics, McGill University, Montreal, QC, October 18, 2013.

23. J. Seuntjens, NRC-SIM Workshop National Research Council Canada (NRC), *Link between standards labs and clinics*, National Research Council Canada, Ottawa, October 25, 2013.
24. M. Hobson, *Ultrasound strain imaging for the evaluation of dysfunctional uterine bleeding*, MAASTRO Clinic Department of Medical Physics, Maastricht, The Netherlands, November 11, 2013.
25. W. Parker, *Failure mode and effects analysis in a radiotherapy environment*, 7th Saudi Conference on Medical Physics, Dammam, Saudi Arabia, November 12-14, 2013.
26. W. Parker, *Incident reporting in a radiotherapy environment*, 7th Saudi Conference on Medical Physics, Dammam, Saudi Arabia, November 12-14, 2013.
27. W. Parker, *Education and training of medical physicists in Canada: A residency training model*, 7th Saudi Conference on Medical Physics, Dammam, Saudi Arabia, November 12-14, 2013.
28. G.B. Pike, *Multi-modal MRI based DBS neurosurgery planning*, University of Kentucky, Neuroscience Grand Rounds, Louisville, KY, December 19, 2013.
29. G.B. Pike, University of Kentucky, Radiology Rounds, *Quantitative functional MRI: Outstanding issues and future directions*, Louisville, KY, December 19, 2013.

APPENDIX XII.

CONFERENCE & SEMINAR PRESENTATIONS

by members of the Medical Physics Unit : 2013 calendar year (x 86)
*(presenter is indicated by an asterisk *)*
(the names of staff members of the MPU are underlined, students are indicated by †)

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1. S.D. Davis, J. Seuntjens, *Canadian partnership for quality radiotherapy draft guidance document on reference dosimetry* (poster), 4th Annual Canadian Winter School on Quality and Safety in Radiation Oncology, Mont Tremblant, QC, January 27-31, 2013.
2. E. Soisson, *Uncertainties in lung SBRT*, Friday MPU Noon Series, McGill University, Montreal, QC, February 29, 2013.
3. C. Hudon, C.R. Freeman, M.D.C. Evans, *A rotational technique for total skin electron irradiation*, RTi3 conference for Radiation Therapy, Toronto, ON, March 1-2, 2013.
4. N. Tomic, N. Sharoubim, F. DeBlois, J. Seuntjens, S. Devic, *CTDI measurements using radiochromic films*, European Conference of Radiology (ECR), Austria Center, March 7-11, 2013, Vienna, Austria.
5. S.D. Davis, W. Parker, M.D.C. Evans, *Using integral activity to compare relative dosimetric efficiency with respect to source type and source change schedules for high-dose-rate brachytherapy* (poster), 34th Annual Meeting of the American Brachytherapy Society (ABS), New Orleans, LA, April 18-20, 2013.
6. S.D. Davis, W. Parker, M.D.C. Evans, *Using integral activity to compare relative dosimetric efficiency with respect to source type and source change schedules for high-dose-rate brachytherapy*, 34th Annual Meeting of the American Brachytherapy Society (ABS), New Orleans, LA, April 18-20, 2013.
7. E. Soisson, *Modern radiotherapy in the treatment of breast cancer*, Pontiac Women's Wellness Network Annual Convention, Shawville, QC, April 20, 2013.
8. I. El Naqa, *Statistical methods for fitting of response/biological models to clinical data*, European Society for Radiotherapy & Oncology (ESTRO) Forum, Geneva, April 20-23, 2013 (Invited teaching lecture).
9. T. Zhang, J.M. Pauly, I.R. Levesque, *Accelerating parameter mapping with a locally low rank constraint*, 21st Scientific Meeting of the International Society for Magnetic Resonance in Medicine (ISMRM), Salt Lake City, UT, April 20-26, 2013, p.2458.
10. N. Stikov, A. Giorgio, J.S.W. Campbell, E.L. Mazerolle, N. De Stefano, G.B. Pike, *Magnetization transfer ratio tractometry in multiple sclerosis*, 21st Scientific Meeting of the International Society for Magnetic Resonance in Medicine (ISMRM), Salt Lake City, UT, April 20-26, 2013.
11. J.S.W. Campbell, G.B. Pike, *How well does the residual bootstrap predict scan-rescan repeatability of fibre orientation measurements from spherical deconvolution diffusion MRI?* 21st Scientific Meeting of the International Society for Magnetic Resonance in Medicine (ISMRM), Salt Lake City, UT, April 20-26, 2013. #2136.
12. A. Berman, Y. Ma, R. Hoge, G.B. Pike, *The effect of dissolved oxygen on the magnetic susceptibility of blood*, 21st Scientific Meeting of the International Society for Magnetic Resonance in Medicine (ISMRM), Salt Lake City, Utah, April 20-26, 2013.
13. A. Berman, R. Hoge, G.B. Pike, *The impact of dissolved oxygen in blood on hyperoxia-based BOLD calibration*, 21st Scientific Meeting of the International Society for Magnetic Resonance in Medicine (ISMRM), Salt Lake City, Utah, April 20-26, 2013, #0851.
14. J. Kildea, T. Hijal, W. Parker, J. Seuntjens, *Database technology in radiation therapy: Comprehensive clinical QA*, Intl. Conf. Computers in Radiotherapy (ICCR), Melbourne, Australia, May 06-09, 2013.
15. J. Kildea, C.R. Freeman, W. Parker, *Standardisation of CSI treatment planning and evaluation using a DVH registry*, Congress of the Pediatric Radiation Oncology Society (PROS), Louisville, KY, May 7-11, 2013.
16. M.D.C. Evans, J. Kildea, W. Parker, *Linear accelerator bunker design, construction and management in a hospital setting (1983–2013)*, Annual scientific meeting of the Canadian Radiation Protection Association (CRPA), Sherbrooke, QC, May 27-30, 2013.

17. M.D.C. Evans, J. Kildea, W. Parker, *The measurement of neutron energy spectra in the high energy neutron flux environment of medical accelerators using the nested neutron spectrometer*, Annual scientific meeting of the Canadian Radiation Protection Association (CRPA), Sherbrooke, QC, May 27-30, 2013.
18. I. El Naqa, *Systems radiobiology: At the intersection of physics and biology*, Canadian Association of Physicists (CAP), Montreal, QC, May 27-31, 2013 (Invited lecture).
19. N. Stikov, A. Giorgio, J.S.W. Campbell, E.L. Mazerolle, N. De Stefano, G.B. Pike, *Imaging the g-ratio in-vivo*, International Society for Magnetic Resonance in Medicine (ISMRM), White Matter Study Group Workshop on "MS as a full brain disease", London, England, June 26-28, 2013.
20. A. Berman, Y. Ma, R. Hoge, G.B. Pike, *The effect of dissolved oxygen on the magnetic susceptibility of blood*, 2nd International Workshop on MRI Phase Contrast & Quantitative Susceptibility Mapping (QSM), Ithaca, NY, July 25-27, 2013, #16.
21. N. Tomic, N. Sharoubim, F. DeBlois, J. Seuntjens, S. Devic, *Radiochromic film based system for CTDI measurements*, 55th Annual Aeeting of the American Association of Physicists in Medicine (AAPM), Indianapolis, IN (SU-D-103-05), August 4-8, 2013.
22. G. Aldosary†, J. Seuntjens, A. Sarfehnia, *Influence of chamber wall material on ionization chamber absorbed dose energy response: A numerical and experimental study*, 55th Annual Meeting of the American Association of Physicists in Medicine (AAPM), Indianapolis, IN, August 4-8, 2013. SU-E-T-72.
23. G. Aldosary†, J. Seuntjens, A. Sarfehnia, *Change of ionization chamber correction factors (Ppol, Pion, KWall) with chamber walls of different materials in continuous and pulsed beams*, 55th Annual Meeting of the American Association of Physicists in Medicine (AAPM), Indianapolis, IN, August 4-8, 2013. SU-E-T-82.
24. A. Toltz†, N. Shin†, C. Laude, D. Roberge, C.R. Freeman, J. Seuntjens, W. Parker, *Prediction of secondary cancer in pediatric, adolescent and young adult patients receiving abdominal external beam radiotherapy*, 55th Annual Meeting of the American Association of Physicists in Medicine (AAPM), Indianapolis, IN, August 4-8, 2013. SU-E-T-282.
25. P. Pater†, J. Seuntjens, M. Bernal, I. El Naqa, *Electronic equilibrium in RBE of DSB induction in Monte Carlo simulations of low energy photon and electron track structures*, 55th Annual Meeting of the American Association of Physicists in Medicine (AAPM), Indiana, IN, August 05-08, 2013. SU-E-T-306.
26. V. Thakur, R. Ruo, J. Seuntjens, W. Parker, R. Doucet, E. Soisson, *Delivery accuracy of stereotactic radiosurgery with tomotherapy using treatment planning system version V4.0 and the recent upgrade V4.2*, 55th Annual Meeting of the American Association of Physicists in Medicine (AAPM), Indiana, IN, August 05-08, 2013. SU-E-T-429.
27. J. Mullins†, J. Seuntjens, F. DeBlois, A. Syme, *Preliminary measurements towards radiation therapy involving dynamic couch trajectories*, 55th Annual Meeting of the American Association of Physicists in Medicine (AAPM), Indiana, IN, August 05-08, 2013. TU-E-108-04.
28. S. Lee†, J. Bradley, N. Ybarra, K. Jeyaseelan, J. Seuntjens, I. El Naqa, *Assessment of different machine learning techniques for multivariate radiation pneumonitis modeling*, 55th Annual Meeting of the American Association of Physicists in Medicine (AAPM), Indiana, IN, August 05-08, 2013. TU-G-108-05.
29. D. Markel†, I. El Naqa, H. Zaidi, *Registration/segmentation for adaptive radiotherapy using the Jensen Renyi divergence*, 55th Annual Meeting of the American Association of Physicists in Medicine (AAPM), Indiana, IN, August 05-08, 2013. SU-E-J-109.
30. S. Asgharizadeh†, A. Syme, J. Seuntjens, I. El Naqa, S. Devic, H. Bekerat†, F. DeBlois, *Patient specific quality assurance tool in rectal brachytherapy*, 55th Annual Meeting of the American Association of Physicists in Medicine (AAPM), Indiana, IN, August 05-08, 2013. WE-A-108-11.
31. M. Vallieres†, C.R. Freeman, S. Skamene, I. El Naqa, *Joint FDG-PET/MR imaging for the early prediction of tumor outcomes*, 55th Annual Meeting of the American Association of Physicists in Medicine (AAPM), Indiana, IN, August 05-08, 2013. WE-C-WAB-02.
32. Y. Zlateva†, I. El Naqa, N. Quitoriano, *Red spectral shift of Cherenkov emission with applications in image-guided and intensity-modulated radiation therapy*, 55th Annual Meeting of the American Association of Physicists in Medicine (AAPM), Indiana, IN, August 05-08, 2013. WE-G-500-05.
33. M. Vallieres†, A. Kumar, K. Sultanem, I. El Naqa, *FDG-PET imaging features can predict treatment outcomes in head and neck cancer*, 55th Annual Meeting of the American Association of Physicists in Medicine (AAPM), Indiana, IN, August 05-08, 2013. TH-A-WAB-02.
34. E. Poon, G. Shenouda, W. Parker, *Dosimetric benefits of replanning for IMRT treatment of head and neck cancer*, 55th Annual Meeting of the American Association of Physicists in Medicine (AAPM), Indiana, IN, August 05-08, 2013. SU-E-J-209.

35. A. Bourque†, J. Carrier, H. Bouchard, *Validation of two mathematical formalisms for tissue characterization in dual energy computed tomography*, 55th Annual Meeting of the American Association of Physicists in Medicine (AAPM), Indiana, IN, August 05-08, 2013. SU-E-J-182.
36. G. Twork, A. Sarfehnia, *Evaluation for the dose-rate dependence of GAFCHROMIC EBT3*, 55th Annual Meeting of the American Association of Physicists in Medicine (AAPM), Indiana, IN, August 05-08, 2013. SU-E-T-88.
37. M. Fan†, F. DeBlois, K. Sultanem, G. Stroian, *A novel web-based tool for quantification of VMAT/IMRT treatment plan quality*, 55th Annual Meeting of the American Association of Physicists in Medicine (AAPM), Indiana, IN, August 05-08, 2013. MO-D-105-05.
38. K. Zerouali, M-A. Renaud†, F. DeBlois, H. Bouchard, J-F. Carrier, *Implementation of clinical Monte Carlo dose calculation for CyberKnife on a web-based treatment planning system WebTPS*, 55th Annual Meeting of the American Association of Physicists in Medicine (AAPM), Indiana, IN, August 05-08, 2013. SU-E-T-498.
39. D. Markel†, I. El Naqa, H Zaidi, *Novel multimodality segmentation using lvel sets and Jensen-Renyi divergence*, Canadian-American-Mexican (CAM) Graduate Student Physics Conference, Waterloo, ON, August 15-18, 2013.
40. Y. Zlateva†, I. El Naqa, N Quitoriano, *Red spectral shift of Cherenkov emission with applications in image-guided and intensity-modulated radiation therapy*, CAM, Waterloo, ON, August 15-18, 2013.
41. T. Monajemi, *New and unified ways of measuring CT dose*, Friday Morning Founds, Montreal General Hospital, Montreal, QC, August 2013.
42. K. Jeyaseelan, J. Coates†, N. Ybarra, M. David, S. Faria, L. Souhami, G. Shenouda, F. Cury, M. Duclos, I. El Naqa, *Copy number variations as predictors of late toxicities in prostate cancer*, COMP-CARO Annual Joint Scientific Meeting, Montreal, QC, September 18-21, 2013. S8.
43. O.M. Maria, A.M. Maria, N. Ybarra, K. Jeyaseelan, S. Lee†, J. Perez†, S. Lehnert, S. Faria, M. Serban, J. Seuntjens, I. El Naqa, *The role of stem-like cells in regional radiosensitivity of the lung*, COMP-CARO Annual Joint Scientific Meeting, Montreal, QC, September 18-21, 2013.
44. M. Popovic, S. Skamene, W. Parker, T. Hijal, *Accelerated physician approval process for standard tangential breast irradiation plans*, COMP-CARO Annual Joint Scientific Meeting, Montreal, QC, September 18-21, 2013. S8.
45. A. Bourque†, J-F. Carrier, H. Bouchard, *Development and comparison of tissue characterization formalisms for dual energy computed tomography*, COMP-CARO Annual Joint Scientific Meeting, Montreal, QC, September 18-21, 2013. S15.
46. P. Pater†, J. Seuntjens, M Bernal, I. El Naqa, *A new probabilistic model for dna strand breaks simulation using Monte Carlo track structures*, COMP-CARO Annual Joint Scientific Meeting, Montreal, QC, September 18-21, 2013. S15.
47. A. Syme, E. Mitrou, J. Quantin, *Factors affecting plan complexity and patient set-up sensitivity of VMAT treatments of head and neck cancer*, COMP-CARO Annual Joint Scientific Meeting, Montreal, QC, September 18-21, 2013. S31.
48. M. Vallières†, C.R. Freeman, S.R. Skamene, I. El Naqa, *Prediction of tumor outcomes using joint FDG-PET/MR diagnostic imaging features*, COMP-CARO Annual Joint Scientific Meeting, Montreal, QC, September 18-21, 2013. S48.
49. Y. Zlateva†, I. El Naqa, M.D.C. Evans, J. Larkin, *Preliminary study of Cherenkov emission by radiotherapy treatment beams for potential application as optical dosimeter*, Canadian Organization of Medical Physicsts – Canadian Association of Radiation Oncologists (COMP–CARO) Annual Joint Scientific Meeting, Montreal, QC, September 18-21, 2013. S54.
50. E. Soisson, J. Seuntjens, M.D.C. Evans, *Validating small field vendor-standard stereotactic high dose rate 6MV beam data using IC10 and LION chambers*, COMP–CARO Annual Joint Scientific Meeting, Montreal, QC, September 18-21, 2013. S55.
51. G. Aldosary†, J. Seuntjens, A. Sarfehnia, *Change of ionization chamber correction factors (Ppol, Pion, KWall) with chamber walls of different materials in continuous and pulsed beams*, COMP–CARO Annual Joint Scientific Meeting, Montreal, QC, September 18-21, 2013. S55.
52. J. Kildea, R. Maglieri†, M.D.C. Evans, J. Seuntjens, A. Licea, J. Dubeau, S.S. Hakmana Witharana, *Validation of Monte Carlo simulations of neutron fluence in the vicinity of a medical linear accelerator using spectral measurements*, COMP-CARO Annual Joint Scientific Meeting, Montreal, September 18-21, 2013. S101.

53. M. Hobson, S.D. Davis, *Correcting the asymmetric response observed in portal dosimetry images due to backscatter from the treatment arm: Comparison between an in-house 1-D profile correction method and a 2-D correction provided in Varian PDPC package*, (poster) COMP-CARO Annual Joint Scientific Meeting, Montreal, QC, Canada, September 18-21, 2013. S103.
54. S. Gholampourkashi†, F. DeBlois, G. Stroian, A. Quenoi, S. Michalowski, *An integrated quality assurance system in radiation oncology*, COMP-CARO Annual Joint Scientific Meeting, Montreal, QC, Canada, September 18-21, 2013. S104.
55. J. Mullins†, J. Seuntjens, F. DeBlois, A. Syme, *Evaluation of Eclipse DMLC dose calculations in the context of dynamic couch trajectory treatments*, COMP-CARO Annual Joint Scientific Meeting, Montreal, QC, Canada, September 18-21, 2013. S104.
56. D. Markel†, I. El Naqa, H. Zaidi, *Novel multimodality segmentation using level sets and Jensen-Renyi divergence*, COMP-CARO Annual Joint Scientific Meeting, Montreal, QC, September 18-21, 2013. S108.
57. M. Fan†, F. DeBlois, K. Sultanem, G. Stroian, *A novel web-based tool for quantification of VMAT/IMRT treatment plan quality*, COMP-CARO Annual Joint Scientific Meeting, Montreal, QC, September 18-21, 2013. S112.
58. M-A. Renaud†, F. DeBlois, *WebTPS: A web application for Monte Carlo plan recalculation*, COMP–CARO Annual Joint Scientific Meeting, Montreal, QC, September 18-21, 2013. S113.
59. A. Toltz†, N. Shin†, C. Laude, D. Roberge, C.R. Freeman, J. Seuntjens, W. Parker, *Prediction of secondary solid cancer in pediatric patients receiving pelvic external eam radiotherapy*, COMP–CARO Annual Joint Scientific Meeting, Montreal, QC, September 18-21, 2013. S116.
60. N. Shin†, A. Toltz†, C. Laude, D. Roberge, C.R. Freeman, J. Seuntjens, W. Parker, *Risk of secondary solid cancers for young patients receiving radiotherapy for localized CNS tumors comparing SRS, 3D-CRT, photon IMRT and IMPT*, COMP–CARO Annual Joint Scientific Meeting, Montreal, QC, September 18-21, 2013. S118.
61. M-A. Renaud†, D. Roberge, J. Seuntjens, *Latent uncertainty in pre-calculated track MC implementation on GPU*, COMP–CARO Annual Joint Scientific Meeting, Montreal, QC, September 18-21, 2013. S118.
62. H.J. Patrocinio, L. Santos Herbst, R. Ruo, *Monte Carlo algorithm as a tool for verifying monitor unit calculations in intensity modulated stereotactic radiosurgery*, (poster) COMP-CARO Annual Joint Scientific Meeting, Montreal, QC, September 18-21, 2013. S121.
63. P. Watson†, E. Mainegra-Hing, N. Tomic, J. Seuntjens, *Scatter artifact correct in CBCT images*, COMP-CARO Annual Joint Scientific Meeting, Montreal, QC, September 18-21, 2013. S122.
64. M.D.C. Evans, S.D. Davis, B. Downton, J. McCaffrey, J. Seuntjens, *Survey meter calibration: Pitfalls and sweetspots*, COMP–CARO Annual Joint Scientific Meeting, Montreal, QC, September 18-21, 2013. S160.
65. K. Jeyaseelan, J. Coates†, N. Ybarra, M. David, S. Faria, L. Souhami, G. Shenouda, F. Cury, M. Duclos, I. El Naqa, *Copy number variations as predictors of late toxicities in prostate cancer*, American Society for Radiation Oncology (ASTRO), Atlanta, GA, September 22-25, 2013.
66. N. Ybarra, G. Shenouda, K. Jeyaseelan, I. El Naqa, *Radiosenstivity of head and neck squamous cell carcinoma derived cells lines and normal tissue cells*, American Society for Radiation Oncology (ASTRO), Atlanta, GA, September 22-25, 2013.
67. O.M. Maria, A.M. Maria, N. Ybarra, K. Jeyaseelan, S. Lee†, J. Perez†, S. Lehnert, S. Faria, M. Serban, J. Seuntjens, I. El Naqa, *The role of stem-like cells in regional radiosensitivity of the lung*, American Society for Radiation Oncology (ASTRO), Atlanta, GA, September 22-25, 2013.
68. M. Vallières†, A. Kumar, K. Sultanem, I. El Naqa, *FDG-PET Image-derived features can determine HPV status in head and neck cancer*, American Society for Radiation Oncology (ASTRO), Atlanta, GA, September 22-25, 2013.
69. M. Popovic, E. Poon, W. Parker, F. Cury, G. Shenouda, *Three-dimensional rendering of mandibular dose distribution: An aid in long-term dental care*, American Society for Radiation Oncology (ASTRO), Atlanta, GA, September 22-25, 2013.
70. M-A. Renaud†, J. Seuntjens, *Pre-calculated track Monte Carlo using GPGU*, American Society for Radiation Oncology (ASTRO), Atlanta, GA, September 22-25, 2013.
71. M. Fan†, F. DeBlois, G. Stroian, *Design of a novel django web-based tool for IMRT/VMAT treatment plan verification and evaluation*, American Society for Radiation Oncology (ASTRO), Atlanta, GA, September 22-25, 2013.
72. M-A. Renaud†, F. DeBlois, *WebTPS: A complete web application for Monte Carlo treatment plan recalculations*, American Society for Radiation Oncology (ASTRO), Atlanta, GA, September 22-25, 2013.

73. N. Shin†, A. Toltz†, C. Laude, D. Roberge, C.R. Freeman, J. Seuntjens, W. Parker, *Risk of radiation-induced late effects for pediatric patients receiving craniospinal irradiation comparing 3D-CRT, IMRT, and IMPT*, American Society for Radiation Oncology (ASTRO), Atlanta, GA, September 22-25, 2013.
74. J. Seuntjens, *Link between standard labs and clinics*, NRC-SIM Workshop, National Research Council, Ottawa, ON, October 25, 2013.
75. A.J. Reader, A. Rahmim, S.H. Keller, S. Blinder, M. Sibomana, J-P. Soucy, *Multi-centre assessment of HRRT image uniformity via 68Ge and 18F cylindrical and anthropomorphic phantoms*, Institute of Electrical & Electronics Engineers (IEEE) Medical Imaging Conference, Seoul, Korea, October 27-November 02, 2013.
76. A.J. Reader, R. Bouhachi, S. Matei, R. Mio, J-P. Soucy, *Evaluation of the HRRT and HR+ for the task of reference region analysis using a realistic head and brain phantom*, Institute of Electrical & Electronics Engineers (IEEE) Medical Imaging Conference, Seoul, Korea, October 27-November 02, 2013.
77. P. Gravel, A.J. Reader, *Direct 4D PET MLEM reconstruction of parametric images using the simplified teference tissue model with the basis function method for non-linear kinetics*, Institute of Electrical & Electronics Engineers (IEEE) Medical Imaging Conference, Seoul, Korea, October 27-November 02, 2013.
78. F.A. Kotasidis, C. Tsoumpas, G.I. Angelis, J.C. Matthews, A.J. Reader, H. Zaidi, *Impact of motion on indirect and direct estimation of kinetic parameters from dynamic PET data*, Institute of Electrical & Electronics Engineers (IEEE) Medical Imaging Conference, Seoul, Korea, October 27-November 02, 2013.
79. P. Novosad†, M. Bieth, H. Lombaert, K. Siddiqi, A.J. Reader, *Applying a 4D [11C]Raclopride template to automated binding potential estimation in HRRT brain PET*, Institute of Electrical & Electronics Engineers (IEEE) Medical Imaging Conference, Seoul, Korea, October 27-November 02, 2013.
80. F.A. Kotasidis, J. Anton-Rodriguez, G.I. Angelis, J.C. Matthews, A.J. Reader, H. Zaidi, *Isotope specific resolution modelling image reconstruction for high resolution PET imaging*, Institute of Electrical & Electronics Engineers (IEEE) Medical Imaging Conference, Seoul, Korea, October 27-November 02, 2013.
81. I. Levesque, *Gradient echo MRI*, MR Seminar, Canadian Association of Medical Radiation Technologists (CAMRT) (Category A CME, CECAP MUHC2013-174), Montreal, QC, November 2, 2013.
82. C. Quintero†, N. Tomic, F. DeBlois, J. Seuntjens, S. Devic, *Energy response of XR-QA2 based radiochromic film dosimetry system*, Association Québecoise des Physiciens Médicaux Clinique (AQPMC), Journée Étudiante, Quebec City, QC, November 8, 2013.
83. R. Maglieri†, *A measurement-validated Monte Carlo study of photoneutronspectra in the vicinity of medical linear accelerators in order to improve neutron shielding techniques*, Association Québecoise des Physiciens Médicaux Clinique (AQPMC), Journée Étudiante, Quebec City, QC, November 8, 2013.
84. M. Vallières†, I. El Naqa, *FDG-PET/MR textural features for the early assessment of tumor aggressiveness*, Association Québecoise des Physiciens Médicaux Clinique (AQPMC), Atelier CHUQ – "La Radiothérapie Adaptive", Quebec City, QC, November 8, 2013.
85. A. Gauvin, S. Laframboise, G. Ruthman, *Strategies for foreign study ingestion by a PACS interfaced to a XDS affinity domain*, Radiological Society of North America (RSNA), December 4, 2013.
86. T. Al Mahmoud, J. Deschenes, G. Shenouda, M.D.C. Evans, C. Edelstein, *Intra-operative echography assisted radioactive iodine-125 plaque placement for choroidal melanoma: Visual acuity outcome*, Emirates Ophthalmology Congress 2013, Dubai, United Arab Emirates, December 12-14, 2013.

APPENDIX XIII.

NEW & ONGOING GRANTS

held by MPU FACULTY MEMBERS in 2013

Grants are generally attained under the auspices of the grantee's primary department, *i.e.,*
either through McGill University (Oncology or Neurology & Neurosurgery)
or the McGill University Health Center (Medical Physics).

[**Amounts listed are annual unless otherwise stated**]

COLLINS, D.L.

D.L. Collins (PI), D.L. Arnold
Development and validation of MRI biomarkers for diagnosis and prognosis of prodromal Alzheimer's disease
Canadian Institutes of Health Research (CIHR), operating grant
(2011-2014).....$127,913

K. Siddiqi, **D.L. Collins** et al.
Medical image analysis
Natural Sciences & Engineering Research Council (NSERC), CREATE grant
(2012-2018).....$300,000

J. Seuntjens, **D.L. Collins** et al.
Medical physics research training network (MRPTN)
Natural Sciences & Engineering Research Council (NSERC), CREATE grant
(2013-2019).....$300,000

K. Siddiqi, **D.L. Collins** et al.
Reconstruction angulaire et radiale dans l'IRM de diffusion
Fonds de recherche du Québec-Nature et technologies (FQRNT), team grant
(2011-2014).....$42,000

D.L. Collins et al.
Image guided neurosurgery: Improving guidance during spinal surgery
Canadian Institutes of Health Research (CIHR), operating grant
(2009-2013).....$251,157

D.L. Collins et al.
Computational and statistical tools for image-guided neurosurgery of brain tumors
Certified Human Resources Professional (CHRP),
Natural Sciences & Engineering Research Council (NSERC) &
Canadian Institutes of Health Research (CIHR), collaborative health research projects
(2010-2013).....$209,399

D.L. Collins
Atlasing for image guided surgery
Natural Sciences & Engineering Research Council (NSERC), discovery grant
(2006-2014).....$40,000

D.L. Collins et al.
Entre le laboratoire et le chevet: Validation de biomarquers optimizes par resonance magnétique pour le diagnostique Clinique précoce et le prognostique dans la maladie d'Alzheimer
Fonds de recherche du Québec (FRQ), FRSQ-Pfizer
(2012-2015).....$199,600

D.L. Collins
Tech transfer for MRI biomarkers
Montreal Neurological Institute (MNI), Centres of Excellence for Commercialization & Research (CECR) grant
(2012-2013).....$79,000

DEBLOIS, F.

F. DeBlois (co-applicant) et al.
VIRA – Virtual Isocenter RapidArc
Varian, research grant
(2013-2014).....$25,000

DEVIC, S.

S. Devic (PI)
Radiochromic film dosimetry
Natural Sciences & Engineering Research Council (NSERC), operating grant
(2010-2015).....$27,000

S. Devic
Dosimetrie à film radiochromique
Fonds de la Recherche en Santé du Québec (FRSQ)
Bourse de chercheur-boursier Junior 2
(2011-2013).....$77,515

EL NAQA, I.

I. El Naqa
Start-up grant
Fast Foundation, lab start-up grant (new Faculty)
(2010-2013).....$150,000

I. El Naqa (PI)
A real-time framework for image-guided adaptive radiotherapy
Natural Sciences & Engineering Research Council (NSERC), discovery grant
(2011-2016) $57,000

I. El Naqa (PI)
Modeling of radiotherapy induced damage in locally advanced lung cancer by a novel system radiobiology approach
Canadian Institutes of Health Research (CIHR)
(2011-2016) $135,790

I. El Naqa (PI)
Computational and computational systems radiobiology infrastructure for biomarker discovery and radiosignaling modeling of radiation-induced normal tissue toxicities in cancer patients
Canadian Foundation for Innovation – Infrastructure Operating Fund (CFI-IOF)
(2012-2017).....$60,000

I. El Naqa
Nanosensors for real-time radiotherapy imaging
McGill Collaborative Research & Development Fund
(2012-2013).....$20,000

J. Seuntjens, **I. El** Naqa et al.
Medical Physics Research Training Network (MPRTN)
Natural Sciences & Engineering Research Council – Collaborative Research & Training Experience (NSERC-CREATE), CREATE grant
(2013-2019).....$ 300,000

EVANS, M.

J. Seuntjens, **M. Evans**, J. Kildea
Research collaboration: Radiation protection for neutrons
Canadian Nuclear Safety Commission (CNSC)
(2012-2013).....$15,000

KILDEA, J.

J. Seuntjens, M. Evans, J**. Kildea**
Research collaboration: Radiation protection for neutrons
Canadian Nuclear Safety Commission (CNSC), student support
(2012-2013).....$15,000

J. Kildea
An analysis of the effectiveness of automated pre-, post- and intra-treatment auditing of electronic health records
Canadian Patient Safety Institute (CPSI), student support
(matching funds from MRPTN-CREATE grant)
(2013-2014).....$7,000

J. Kildea et al.
Patient education material
Rossy Cancer Network, grant
(2013).....$20,000

LEHNERT, S.M.

S.M. Lehnert (PI)
Evaluation of radiprotective drug: Studies involving total body irradiation
L.A.B. Institut de Recherche in Pharmacie Industrielle Inc, Contract
(2005-2013).....$50,875

I. El Naqa, **S.M. Lehnert**, et al
Modeling of radiotherapy induced damage in locally advanced lung cancer by a novel system radiobiology approach
Canadian Institutes of Health Research (CIHR)
(2011-2016) $135,790

LEVESQUE, I.R.

I.R. Levesque (PI)
Start-up grant
Montreal General Hospital Foundation, Research Institute-McGill University Health Centre (MGH, RI-MUHC)
(2013-2016).....$75,000

PARKER, W.

D. Roberge, J.P. Bahary, C. Laverdière, C.R. Freeman, J. Seuntjens, **W. Parker**
Évaluation de l'impact potential d'un centre Québecois de protonthérapie pour les jeunes survivants de cancer
Fonds de recherche en santé Québec (FRSQ)
(2010-2013).....$95,318

J. Seuntjens, C.R. Freeman, **W. Parker**, G. Shenouda
Monte Carlo-based mixed electron/photon beam inverse treatment planning, delivery and verification
Canadian Institutes for Health Research (CIHR)
(2010-2015).....$60,000

PIKE, G.B. **(total grant amount)**

G.B. Pike et al.
Quantitative magnetic resonance imaging of multiple sclerosis
Canadian Institutes of Health Research (CIHR), operating grant
(2010-2015).....$805,242

R. Zatorre, V. Penhume (PIs), A. Evans, K. Hyde, **G.B. Pike**
Brain anatomy in auditory and motor learning: Predispositions & plasticity
Canadian Institutes of Health Research (CIHR), operating grant
(2010-2015).....$609,163

T. Paus, **G.B. Pike**, D. Gaudet
Programming brains across generations: How early environment and genes shape the risk of addiction
Canadian Institutes of Health Research (CIHR), team grant (Canada-Finland)
(2011-2014).....$1,000,000

D.L. Arnold, S. Narayanan, **G.B. Pike**
Imaging inflammation in MS
MSSS, operating grant
(2011-2013).....$238,564

D.L. Arnold, **G.B. Pike**, S. Narayanan
MTR assessment of remyelinating therapies
MSSS, operating grant
(2011-2013).....$183,194

M. Beauregard, A Brunet, **G.B Pike**
Self-regulation of ventromedial prefrontal activity in post-traumatic stress disorder: A real-time fMRI neurofeedback study
Quebec Bio-Imaging Network, Strategic Initiative Program
(2011-2013).....$49,925

V. Gracco, **G.B. Pike** et al.
Regroupement pour la recherche sur le cerveau, le langage et la musique
FQRNT and FQRSC
(2011-2017).....$2,250,000

K. Siddiqi, D.L. Collins, **G.B. Pike**
Reconstruction angulaire et radiale dan l'IRM de diffusion
(Radian and angular reconstruction in diffusion MRI)
FQRNT, team grant
(2011-2014).....$126,000

K. Hyde, **G.B. Pike**, E. Fombonne
Auditory processing in typical development and in autism spectrum disorder: Insight from the brain and behavior
Canadian Institutes of Health Research (CIHR), operating grant
(2011-2016).....570,545

G.B. Pike (McGill) (PI), J. Near (Oxford)
Undersampled two-dimensional magnetic resonance spectroscopy for accurate quantification of tissue metabolites in-vivo
Oxford-McGill Neuroscience Collaboration Funding (OMNC)
(2011-2014).....$10,800

G.B. Pike et al.
Functional MRI of brain physiology
Canadian Institutes of Health Research (CIHR), operating grant
(2012-2017).....$1,031,795

G.B. Pike et al.
MRI acquisition and analysis methods for image guided neurosurgery
Natural Sciences & Engineering Research Council (NSERC), discovery grant
(2012-2017).....$260,000

G.B. Pike et al.
CREATE program in medical image analysis
Natural Sciences & Engineering Research Council – Collaborative Research & Training Experience (NSERC-CREATE), CREATE grant
(2012-2018).....$1,650,000

J. Seuntjens, **G.B. Pike** et al.
Medical Physics Research Training Network (MPRTN)
Natural Sciences & Engineering Research Council – Collaborative Research & Training Experience (NSERC-CREATE), CREATE grant
(2013-2019).....$2,000,000

G.B. Pike et al.
Electrical and metabolic analysis of human epileptogenic lesions
Canadian Institutes of Health Research (CIHR), operating grant
(2013-2018).....$805,000

G.B Pike
Health brain aging
Campus Alberta Innovates Chair, grant
(2013-2020).....$4,500,000

READER, A. (total grant amount)

A.J. Reader
Canada Research Chair in Positron Emission Tomography
Canada Research Chairs Program
(2008-2013).....$500,000

A.J. Reader
Scanner-adaptive image reconstruction platform for accelerated technology transfer in Positron emission tomography
Centre of Excellence in Commercialization & Research (CECR)
(2010-2013).....$100,000

A.J. Reader
Task-oriented optimization of high- performance positron emission tomography
Natural Sciences & Engineering Research Council (NSERC)
(2010-2015).....$135,000

A.J. Reader
Infrastructure operating grant
McGill University
(2012-2013).....$24,000

A.J. Reader
Canada Research Chair in Positron Emission Tomography
Canada Research Chairs Program (renewal)
(2013-2018).....$500,000

J. Seuntjens, **A.J. Reader** et al.
Medical Physics Research Training Network (MPRTN)
Natural Sciences & Engineering Research Council – Collaborative Research & Training Experience (NSERC-CREATE), CREATE grant
(2013-2019).....$2,000,000

SEUNTJENS, J.

J. Seuntjens et al.
Accurate reference dosimetry of non-standard beams using water calorimetry, ionization chambers and Monte Carlo dose calculations
Natural Sciences & Engineering Research Council (NSERC), discovery grant
(2009-2013).....$267,000

D. Roberge (PI), **J. Seuntjens**, et al.
Evaluation de l'impact potentiel d'un centre Québécois de protonthérapie chez les jeunes survivants de cancer
Fonds de la recherche en santé de Québec (FRSQ), research grants
(2010-2013).....$285,955

J. Seuntjens et al.
Monte Carlo-based mixed electron/photon beam inverse treatment planning, delivery & verification
Canadian Institutes for Health Research (CIHR), operating grant
(2010-2015).....$300,000

J. Seuntjens
"Bourse" for students in medical physics
Ministère de la santé et des services sociaux du Québec
(2011-2013).....$34,000

J. Seuntjens, M. Evans, J. Kildea
Research collaboration: Radiation protection for neutrons
Canadian Nuclear Safety Commission (CNSC)
(2012-2013).....$15,000

J. Seuntjens
"Bourse" for students in medical physics
Ministère de la santé et des services sociaux du Québec
(2012-2014).....$34,000

J. Seuntjens
"Bourse" for students in medical physics
Ministère de la santé et des services sociaux du Québec
(2013-2015).....$34,000

J**. Seuntjens** et al.
Medical Physics Research Training Network (MPRTN)
Natural Sciences & Engineering Research Council – Collaborative Research & Training Experience (NSERC-CREATE), CREATE grant
(2013-2019).....$2,000,000

SOISSON, E.T.

D. Roberge (PI), **E.T. Soisson** et al.
Evaluation de l'impact potentiel d'un centre Québécois de protonthérapie chez les jeunes survivants de cancer
Fonds de la recherche en santé de Québec (FRSQ), research grants
(2010-2013).....$285,955

SYME, A.

A. Syme (co-applicant) et al.
VIRA – Virtual Isocenter RapidArc
Varian, research grant
(2013-2014).....$25,000

APPENDIX XIV.

RESEARCH INTERESTS OF THE ACADEMIC MEMBERS OF THE MPU

COLLINS, Louis	*Image processing, registration, segmentation, MRI, image guided neurosurgery, multiple sclerosis, Alzheimer's disease, Parkinson's disease, epilepsy.*
DAVIS, Stephen	*Accurate radiation dosimetry applied to calibration of radiation measurement devices. Commissioning of a Monte Carlo treatment planning system.*
DEBLOIS, François	*Photon and electron beam dosimetry, stereotactic radiosurgery, Monte Carlo treatment planning and medical physics software.*
DEVIC, Slobodan	*Radiochromic film dosimetry; biological target volumes for radiotherapy treatment planning.*
EL NAQA, Issam	*Oncology bioinformatics, computational and systems biology, multimodality imaging, adaptive radiotherapy.*
EVANS, Michael D.C.	*Clinical aspects of radiotherapy, including low and high dose rate brachytherapy, dynamic external beam radiotherapy, linear accelerator calibration and quality assurance, computerized treatment planning, radiation safety.*
FARIVAR-MOHSEN, Reza	*Functional imaging; histological analysis; image analysis; MRI; molecular biology; non-human primate; statistical analysis; vision; psychophysics.*
GAUVIN, Alain	*Interest in imaging informatics revolves mostly around two topics: regional imaging integration, and multi-system integration of medical imaging within the hospital IT ecosystem.*
HEGYI, Gyorgy	*Image analysis and manipulation, patient radiation dose determination in radiology with special dosimetry techniques, health physics. Different diagnostic imaging procedures can result in significant radiation dose to the patient. The radiation dose to pediatric patients during CT procedures is of special concern. Special dosimmetry tools are required for routine CT dose measurements like radiochromic films, MOSFETs others.*
HOBSON, Maritza	*Development of "in vivo" transit dosimetry procedures for EPIDs; characterization of portal imagers; development of routine QA procedures for quality on OBIs; CT Sim using ACR CT phantom.*
JANICKI, Christian	*Acts & Regulations for nuclear substances and devices; radiation exposure from medical sources and environment; Linear-No-Threshold (LNT) and cancer risk models; health risks from nuclear accidents (e.g. Fukushima); transport of nuclear substances and waste disposal in the environment; security of nuclear sources and devices in hospitals.*

KILDEA, John	*Electronic QA; database tools, neutron spectra.*
LEGÉR, Pierre	*Distance and position sensing, dose detection, dose delivery, x-ray control, general application of electronic to geophysics and radiotherapy.*
LEHNERT, Shirley M.	*Radiobiology, tumor biology, drug delivery, functional imaging.*
LEVESQUE, Ives	*Quantitative MRI techniques, signal modeling, pulse sequence development, (Siemens, GE), image analysis, applications to multiple sclerosis.*
LIANG, Li Heng	*Ortho-voltage treatment machine, film dosimetry.*
MONAJEMI, Thalat	*Dose calculate for permanent prostate implants incorporating edema.*
PARKER, William	*Pediatric radiotherapy, quality assurance and dosimetric measurements of IMRT beams.*
PATROCINIO, Horacio J.	*Stereotactic radiosurgery, image-guided stereotactic body radiation therapy, motion and margin assessment in radiotherapy, image-guided brachytherapy.*
PIKE, G. Bruce	*Medical imaging, magnetic resonance imaging, functional brain imaging, brain physiology, image guided neurosurgery.*
PODGORSAK, Ervin B.	*Photon and electron beam dosimetry, stereotactic radiosurgery, general applications of physics to radiotherapy.*
POON, Emily	*Monte Carlo dose calculations; adaptive radiotherapy; treatment planning software development; brachytherapy dosimetry; deformable image registration.*
POPOVIC, Marija	*Treatment of head & neck Ewing's sarcoma in pediatric & young adult patients; treatment plan comparison for larynx, oro- and hypopharynx carcinomas: RapidArc vs sliding-window IMRT techniques.*
READER, Andrew	*Image reconstruction, 4D Positron Emission Tomography (PET).*
RICHARDSON, Richard B.	*Radiation, p53, stem cells, cancer, aging.*
RUO, Russell	*Intensity modulated radiotherapy (IMRT), image guided radiotherapy (IMGT), stereotactic radiosurgery (SRS).*
SARFEHNIA, Arman	*Water calorimetry, particle therapy dosimetry, detector design and optimization, beam quality, absolute dosimetry.*
SERBAN, Monica	*Commissioning and validation of Eclipse electron Monte Carlo treatment planning system.*
SEUNTJENS, Jan	*Radiation dosimetry; Monte Carlo simulation, radiation detectors, device development, radiation biophysics and clinical applications.*
SOISSON, Emilie	*Stereotactic, tomotherapy, Monte Carlo, image guidance (IGRT).*
STROIAN, Gabriela	*Deformable registration, heterogeneity corrections, Monte simulations, image guided radiotherapy, radiobiological modeling in brachytherapy.*

SYME, Alasdair	*Virtual Isocentre RapidArc (VIRA), novel radiation detectors, plastic scintillation detectors.*
THEBAUT, Jonathan	*Monte Carlo, orthovoltage/superficial, IMRT/VMAT.*
TOMIC, Nada	*Image guided radiation therapy; radiochromic film dosimetry.*
WIERZBICKI, Wieslaw	*TBI, dosimetry of small radiation fields, "in vivo" dosimetry.*

APPENDIX XV.

MPU SEMINAR SERIES : 2013 CALENDAR YEAR

Winter 2012-2013

January 11, 2013 : Boris Kell (Massachusetts General Hospital, Boston, MA)
Improving sensitivity and speed in MRI and its integration with radiation modalities

January 25, 2013 : Kavita Murthy (Canadian Nuclear Safety Commission, Ottawa, ON)
How Finland regulates the use of ionizing radiation in medical facilities

February 08, 2013 : Yani Picard (Canadian Nuclear Safety Commission, Ottawa, ON)
The life of a medical physicist at the public service of Canada

February 21, 2013 : Bryan Muir (Carleton University, Ottawa, ON)
Measurements and Monte Carlo simulations for reference dosimetry of high-energy photon and electron beams

February 22, 2013 : Richard B. Richardson (AECL, Chalk River, ON)
Are beta and alpha-emitting radionuclindes effective treatments against leukemia stem cells and bone metastases?

March 22, 2013 : Various staff (McGill University / McGill University Health Centre / Montreal Neurological Institute / SMBD-Jewish General Hospital, Montreal, QC)
Project presentations to M.Sc. students

April 05, 2013 : Gyorgy Hegyi (McGill University Health Centre, Montreal, QC)
Current standing on CT dose optimization through different makes and user preferences

April 12, 2013 : Emilie Soisson (McGill University Health Centre, Montreal, QC)
Uncertainties in lung SBRT

April 26, 2013 : Elahe Alizadeh (Université de Sherbrooke, Sherbrooke, QC)
Low energy electronics and radiation damage to DNA: From fundamental processes to applications

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Summer 2012-2013

June 21, 2013 : Magdalena Bazalova (Stanford University, Stanford, CA)
Should we treat cancer with very high electron beams?

July 05, 2013 : Patricia Lindsay (University of Toronto / Princess Margaret Hospital, Toronto, ON)
Development and applications of an image-guided small animal irradiation platform for translational research

July 10, 2013 : Patricia Lindsay (University of Toronto / Princess Margaret Hospital, Toronto, ON)
Development and applications of an image-guided small animal irradiation platform for translational research

Fall 2013-2014

September 27 : **Ramzi Jamal** (Canadian Nuclear Safety Commission, Ottawa, ON)
Fukushima-Daiichi NPP Site Visit & Decontamination Tour of the Tohoku Region

October 04 : **Randy Taylor** (Ottawa Hospital, Ottawa, ON)
Leveraging Software to Improve Quality Control in the Clinic

October 18 : **Marija Popovic** (McGill University Health Centre, Montreal, QC)
Intraoperative Radiotherapy with INTRABEAM®: Overview of Clinical Benefits and Initial Implementation Challenges

November 08 : **Sue Laver** (McGill Writing Centre, McGill University, Montreal, QC)
Entering the Scholarly Conversation

November 15 : **Ranjini Tolakanahalli** (Hamilton Health Sciences, Hamilton, ON)
Imaging in Personalized Radiation Therapy: Past, Present and Future

November 22 : **Joanna Cygler** (Ottawa Hospital Cancer Centre, Ottawa, ON)
Clinical Capabilities of RADPOS: A Novel 4D "in vivo" system

December 06 : **Leah Schubert** (U Colorado School of Medicine, Aurora, CO)
Physicists and the radioisotopes for clinical radiopharmaceutical: Production and concepts

APPENDIX XVI.

COMMITTEE INVOLVEMENT of MPU FACULTY MEMBERS

within McGill from January-December 2013

COLLINS, L.:
Chair, *Brain Imaging Centre Computing Infrastructure Committee* (2004-present)
Director, *Dept Biomedical Engineering Graduate Committee* (2005-present)
Member, *Graduate Program in NeuroScience Committee* (2000-present)
Chair, *Graduate Program in NeuroScience Admissions Committee* (2008-present)
Member, *Biomedical Engineering Awards Committee* (2010-2013)
McConnell Brain Imaging Centre, Montreal Neurological Institute
Member, *Killam Lecture Series Committee* (1999-present)
Member, *MNI Named Lecture Committee* (2002-present)
Montreal Neurological Institute
Member, *Planning Advisory Council – FPG57 MNI Research Space*
McGill University Health Centre

DEBLOIS, F.:
Member, *Medical Physics Residency Committee* (2008-present)
McGill University
Member, *Radiation Oncology Radiation Safety Committee* (2008-present)
Member, *Radiation Oncology Quality Assurance Committee* (2008-present)
SMBD Jewish General Hospital

EL NAQA, I.:
Member, *Medical Physics Radiation Safety Committee* (2010-present)
Member, *Radiation Oncology / Medical Physics Research Committee*
McGill University Health Centre (MUHC)
Member, *Graduate Program Committee; Curriculum Review Committee* (2010-present)
Medical Physics Unit, McGill University

EVANS, M.D.C.:
Member, *Residency Training Committee* (1999-present)
Member, *Radiation Safety Committee*
Medical Physics Unit, McGill University
Member, *Radiation Safety Committee* (2003-present)
Member, *Medical Physics Radiation Safety Committee* (2006-present)
Member, *Radiation Oncology QA Committee* (2002-present)
Member, *Medical Physics QA Committee* (2006-present)
McGill University Health Centre

HEGYI, G.:
Member, *Radiation Safety Committee*
McGill University Health Centre (MUHC)

JANICKI, C.:
Member, *Radiation Safety Committee*
Member, *Research Centre Health & Safety Committee*
Member, *Unité conjointe d'évaluation des technologies de la santé / Joint Technology Assessment Unit (TAU)*
McGill University Health Centre

KILDEA, J.:
Member, *Medical Physics QA Committee*
Member, *Medical Physics Radiation Safety Committee*
Member, *Radiation Oncology Electronic Chart Committee*
Member, *Radiation Oncology LEAN Healthcare Committee*
McGill University Health Centre
Chair, *Seminar Committee* (2013-present)
Member, *Graduate Committee* (2013-present)
Member, *Curriculum Committee* (2011-present)
Member, *Alumni Committee* (2013-present)

LEHNERT, S.M.:
Member, *Radiation Safety Committee*
Member, *Radiation Oncology Residents Training Committee*
McGill University Health Centre

PARKER, W.A.:
Director, *Residency Training Committee (Radiation Oncology Physics)*
Member, *Quality Assurance Committee*
Member, *Radiation Safety Committee*
Medical Physics, McGill University Health Centre
President, *Board of Directors*, MGH Child Care Centre
Clinical Advisor, *Glen Campus Cancer Centre*
Member, *Radiation Therapy Equipment Procurement Committee*
Member, *Access to Treatment Committee (Radiation Oncology)*
Member, *Event Reporting Committee*
Member, *Pre-treatment Image Verification Committee*
Member, *Review of Patient Waiting Times - Quality Assurance Committee (Radiation Oncology)*
McGill University Health Centre
Member, *CARMS – Radiation Oncology Resident Selection Committee*
McGill University

PATROCINIO, H.J.:
Member, *Seminar Committee*
Clinical Coordinator, *Residency Training Program (Radiation Oncology Physics)*
Member, *Residency Training Committee (Radiation Oncology Physics)*
Member, *Medical Physics Quality Assurance Committee*
Member, *Radiation Safety Committee*
Medical Physics, McGill University
Member, *Radiation Oncology Brachytherapy Committee*
Member, *Novalis / SRS Committee*
McGill University Health Centre

PIKE, G.B.:
Co-Chair, *Ad-hoc Committee: Coordination of BME Activities at McGill* (2009-present)
Member, *Departmental Tenure Committee* (2005-present)
Member, *Departmental Advisory Committee* (2010-present)
Member, *Ad-hoc Advisory Committee for Merit Exercises* (2011-present)
Biomedical Engineering Department, McGill University
Member, *Admissions Committee* (2008-present)
Member, *Search Committee – Academic Positions* (2009-present)
Medical Physics Unit, McGill University
Director, *McConnell Brain Imaging Centre* (1999-present)

Chair, *Magnetic Resonance Research Committee* (1997-present)
Member, *PET Working Committee* (1999-present)
Chair, *BIC Business Committee* (1999-present)
Member, *McBIR Faculty Search Committee* (2002-present)
Member, *Small Animal MRI Committee* (2007-present)
Member, *Centres of Excellence for Commercialization & Research Committee (CECR)* (2007-present)
Special Advisor – *Interim Director of the MNI* (2011-present)
Member, *MNI Strategic Committee* (2009-present)
Member, *CECR Advisory Committee* (2010-present)
Member, *Research Advisory Committee* (2011-present)
Member, *Search Committee for the Director/MNI and Associate Director General/MNH* (2011-present)
Montreal Neurological Institute
Member, *Faculty Search Committee* (2011-present)
Douglas Research Institute

READER, A.: Member, *PET Working Committee* (2008-present)
Montreal Neurological Institute (MNI)

SEUNTJENS, J.: Chair, *Graduate Admissions Committee* (2009-present)
Chair, *Curriculum Committee* (2011-present)
Chair, *Alumni Committee* (2013-present)
Medical Physics Unit, McGill University
Member, *Oncology Management Committee* (2009-present)
Member, University Tenure Committee (Dept. Religious Studies, 2012-present)
Member, *Admissions Committee*, Medical Physics Unit (2004-present)
McGill University
Co-Director, *Residency Training Committee (Radiation Oncology Physics)*

SOISSON, E.: Member, *Grant Review Committee – Studentship & Fellowship Awards*
Research Institute, McGill University Health Centre
Member, *IGRT Committee,* Radiation Oncology Department
Member, *Dosimetry Committee*, Radiation Oncology Department
Member, *Machine Quality Assurance Committee*
McGill University Health Centre
Member, *Alumni Committee* (2013-present)
Medical Physics Unit, McGill University

APPENDIX XVII.

COMMITTEE INVOLVEMENT of MPU STAFF MEMBERS OUTSIDE McGILL from January-December 2013

COLLINS, D.L.:
Member, *Editorial Board*, Journals: Medical Image Analysis, NeuroImage, Medical Physics, Human Brain Mapping, IEEE Transactions on Medical Imaging
Member, *Review Board*, CIHR, NSERC, FRSQ, MSSC, Burroughs Wellcome Foundation

DEBLOIS, F.:
President, (2011-present)
Member, *Science & Education Committee; Professional Affairs Committee; Quality Assurance & Radiation Safety Committee* (2010-present)
Association Québecoise des Physicien(ne)s Médicaux Cliniques (AQPMC)

DEVIC, S.:
Member, *Board of Editors*
Journal of Medical Physics

EL NAQA, I.:
Member, *AAPM Task Group No. 211 – Classification, Advantages & Limitations of the Autosegmentation Approaches for PET* (2011-present)
Member, *Editorial Board*
Journal Radiation Oncology Informatics (2009-present)
Member, *Editorial Board*
American Journal of Science & Engineering (2011-present)

EVANS, M.D.C.:
Member, *Membership Oral Exam Committee*
Representative, *International Conjoint Committee on Accreditation: Site visit CAN-Qatar* (Doha, Qatar, March 2011)
Canadian Medical Association (CMA)
Member, *TG113 Clinical Trials Working Group*
American Association of Physicists in Medicine (AAPM)
Member, *Quality Assurance & Radioprotection Committee*
Association Québecoise des Physicien(ne)s Médicaux Cliniques (AQPMC)

LEHNERT, S.M.:
Member, *Scientific Advisory Committee* (2001-present)
Biological Research Facility, AECL Laboratories, Chalk River
Member, *Scientific Advisory Board* (2005-present)
Resonant Medical Systems, Montreal, Quebec
Member, *Editorial Advisory Board*
Open Nuclear Medicine Journal
Member, *Editorial Board*
International Journal of Cancer Research & Remedies

PARKER, W.A.:
Chairman, *Summer School Sub-Committee*
Member, *Continuing Professional Development Committee*
Chairman, *RSNA Education Coordination Sub-Committee*
American Association of Physicists in Medicine (AAPM)
Oral Examiner, *Membership Exam*
Canadian College of Physicists in Medicine (CCPM)

Member, *Comité de devis techniques en radiothérapie*
Association Québecoise des Physiciens Médicaux Cliniques (AQPMC)
Member, *Credential Review Committee*
Canadian College of Physicists in Medicine (CCPM)

PATROCINIO, H.J.: Oral examiner, *Fellowship & Membership exams*
Canadian College of Physicists in Medicine (CCPM)
Member, *Professional Affairs Committee*
Canadian Organization of Medical Physicists (COMP)
ABR Item Writer, *Radiological Physics exam*
American Board of Radiology

PIKE, G.B.: Ad-hoc reviewer & Panel Member,
Multiple Granting Agencies
Member, *Editorial Board*
Journal - NeuroImage
Member, *Advisory Board / Committee*
CInAPCe (Neuroscience) Project, Sao Paolo, Brazil
Quantitative Neuroscience with Magnetic Resonance (QNMR), Yale University
Quebec Bio-Imaging Network (QBIN)
National Research Council of Canada, Institute for Biodiagnostics
Ontario Institute for Cancer Research (Chair, January 2013)

READER, Andrew: Reviewer, *Grant applications*
Research Grants Council, Hong Kong
Wellcome Trust, England
Associate Editor,
International Journal of Tomography & Statistics
Member, *IEEE Nuclear & Medical Imaging Sciences Council* (2011-present)
Member, *Scientific Committee*, Fully 3D Reconstruction Meeting (2011)

SEUNTJENS, J.: Key Mentor (national), *Excellence in Radiation Research in the 21st Century Training Program* (EIRR21)
Canadian Institutes for Health Research (2006-present)
Chair, *Committee on Small-field Photon Dosimetry & Applications in Radiotherapy* (2010-present)
International Commission on Radiation Units & Measurements (ICRU)
Member, *Medical Physics & Imaging grant panel* (2009-present)
Canadian Institutes for Health Research (CIHR)
Chair, *Workgroup on the Development of a Calibration Protocol for TG-51 Non-compliant Beams* (2007-present)
American Association of Physicists in Medicine (AAPM)
Member, *International Advisory Committee on Small-field Dosimetry*
International Atomic Energy Agency (IAEA) (2007-present)
Member, *Workgroup on Update of TG-51 (WGTG51)* (2006-2013)
American Association of Physicists in Medicine (AAPM)
Member, *International Advisory Committee on IAEA Phase Space*
International Atomic Energy Agency (IAEA) (2006-present)

SOISSON, E.: Member, *Imaging for Treatment Verification Work Group*
Member, *Usability & Vendor Relations Sub-Committee*
American Association of Physicists in Medicine

WIERZBICKI, W.: Member, *Provincial Government Radiation Oncology Committee*
Member, *Committée pour achats regroupés des accélérateurs*
Quebec City, Quebec