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Canadian Organization of Medical Physicists

OCPM
Organisation canadienne des physiciens médicaux

THE CANADIAN COLLEGE OF PHYSICISTS IN MEDICINE

LE COLLÈGE CANADIEN DES PHYSICIENS EN MÉDECINE

CANADIAN MEDICAL PHYSICS NEWSLETTER | LE BULLETIN CANADIEN de PHYSIQUE MÉDICALE

InterACTIONS

63(1) January/janvier 2017

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Please submit stories MS Word or ASCII text format. Images in Tiff format at 300 dpi resolution are preferred.

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MESSAGE FROM THE COMP PRESIDENT

It's a new year, our traditional time for resolutions and fresh starts. In this spirit, COMP is embarking on implementation of a new strategic plan. Elsewhere in this issue of InterACTIONS, there is an article describing the strategic planning process and the plan itself. It was a tremendous amount of work for the board and the strategic planning committee, and I want to thank everyone involved, including our consultant, Meredith Low. Strategic plans are key for any organization as they provide clear direction so that organizations can move forward in focused, deliberate ways to achieve their mission. Without strategies and the associated tactics, decisions on where to take action can become influenced more by those that speak the loudest rather than by any real potential benefit to an organization's mission.

Our new strategic plan will direct COMP's activities over the next three years. The plan consists of four strategic priorities and associated tactics – please see the article later in this issue. You can also find the full plan on the COMP website. The strategies are, by design, very broad. The tactics describe, still at a high level, how the strategies will be implemented. For example, the first strategy advocates for medical physicists as leaders in innovation and technology implementation in health care, and associated tactics include, for example, engaging with organizations of health care administrators and physicians and providing a national response to regulatory issues.

At the recent COMP mid-year board meeting, we had our first real opportunity to put the strategic plan into action as the driver of our agenda. It was a very full but productive meeting, much of which focused on identifying specific goals and plans for the coming year. Throughout the meeting, the value of having a well-defined strategic plan was quickly and continuously evident. We posted the strategies and tactics on the walls surrounding the meeting table, and we found ourselves constantly referring back to these sheets inquiring: "Does this initiative fit with our strategic goals? i.e. does it help us get where we want to go?"

I cannot highlight all initiatives here, but will provide a few examples to try to give you a sense of what the strategic plan "in action" looks like. To ensure medical physicists have access to relevant content (strategy 2), we can look to recent initiatives such as joining SOSIDO and the establishment of a new category of publications in JACMP called COMP Reports. We can also look forward to more education and discussion sessions and a keynote presentation at our ASM. To improve connectivity of our community (strategy 3), we will be collecting demographic data at the time of membership renewal to facilitate building of communities practice (for example to connect residency program directors within a COMP community). These are just examples, and we should look forward to more strategic initiatives to come.

Michelle Hilts

I'm hoping that each of you will take a moment to look over the strategic plan thoughtfully. Ask yourself, "What actions could COMP take within these priorities that would be helpful to our community? As a researcher? As a clinical practitioner at a regional cancer centre? In industry? As an educator? As a regulator? As a hospital imaging physicist?" If any ideas come to mind, please pass them on. Input from the breadth of our community is the only way that COMP can be its best.

With our new strategic plan in hand, I am filled with confidence that we are ready to take on the new year and to move forward to best serve our amazing COMP community.

So with that, here's to 2017!

MESSAGE FROM THE CCPM PRESIDENT

During the first weekend in November, the CCPM Board met in Toronto for its annual mid-year meeting. Here is a summary of the discussions during these meetings.

An annual survey is being developed to get more formal feedback on the membership examination process. The survey will be provided to candidates and examiners immediately following the membership written and oral exams. With the candidate survey, we are hoping to evaluate the candidate's impressions on the clarity and relevance of the questions asked, as well as feedback on the examiners and invigilators. The examiner survey will also cover the clarity and relevance of the questions, but from the examiner's point of view. The goal is to use this information to improve the questions used for the MCCPM exam, as well as the examination process.

Preparations are well under way for the 2017 MCCPM written exam. One change that the board is looking into for the 2017 exam is the use of an automatic marking system for the multiple choice sections (Parts I and II). The proposed approach would be for the candidate to fill out a special form for the multiple choice questions which will then be scanned. The candidate's responses could then be evaluated automatically. Exam questions are already entered into an examination software, and adding the responses of the candidates would allow us to use analytics to evaluate the effectiveness of each question. The process is still under review. We are hoping it will be in place for the 2017 exam.

Last year, close to 20% of our membership participated, in one way or another, to the exam process. This includes, but not limited to, contributing new questions, acting as invigilators, examiners, or markers. Again this year we are looking for volunteers to help. Those who are interested are asked to contact our chief examiner, Renée Larouche, at chiefexaminer@ccpm.ca. The work of the college cannot happen without the help of you, our members. Please consider participating!

Seventy members were due to recertify this year. The online process on the CCPM website was again used and worked quite well. The goal would be to give all members access to this online system. CCPM members could therefore be able to enter their recertification activities as they happen. The board is hoping that this will be available in 2017.

The board discussed changes to the recertification credit system during the mid-year meeting. Work is still needed to finalize the new point system. We are hoping that the point system can be presented to the membership in 2017. However, the system will be phased in only after the membership has had some time to adjust to the changes.

The regulations of the college are reviewed regularly by the board. This year, only one regulation change was made. Regulation D.2.8 discusses the requirements for candidates to have a clear link to Canada, either via their status, their studies or training, or via a confirmed position in Canada. However, this regulation had a "notwithstanding" clause that allowed the board to waive this requirement in exceptional situations. Most inquiries on this clause come from foreign physicists who do not have any link to Canada. The board felt that this clause should be removed since the CCPM certification is intended to serve Canadians. On a separate note, an international certification process is currently being

Clément Arsenault

discussed by the International Medical Physics Certification Board. The main mandate of this board is to help countries establish their own certification boards. However, they are considering offering individual certification to physicists who do not have access to certification boards. The CCPM has also been approached by the IMPCB to become a supporting organisation. This is currently under review.

Finally, I would like to mention the planning session that the board held on the last morning of our mid-year meeting. This was the first exercise of its kind for the current board and will likely not be the last! It provided for more open and less-structured discussions on certification needs at-large. Several interesting ideas came from these discussions and will be investigated further by the board. As an example, one topic that was quite interesting to the board was the potential role of external stakeholders, such as COMP, CAMPEP, the residency programs, or the CNSC, in the certification process. As these ideas mature and become more defined, they will be presented to the membership for comments. Stay tuned!

EXECUTIVE DIRECTOR REPORT

As I write this column, I have just come back from the COMP Board midyear meeting. As always, the board meeting was productive and positive – COMP is in excellent hands! As COMP President Michelle Hilts mentions in her column, the meeting agenda was designed to ensure that the board is focused on the priorities established as part of the strategic planning process. This approach worked well and will help us ensure that the plan is implemented over the next three years. More information about the plan is included in a separate article in this issue and the plan has also been posted on the website.

For the past several years, the midyear meeting has included a board orientation process which is focused on roles, responsibilities, and working together. The orientation process helps the board focus on its three key roles: oversight, leadership, and risk management. One of things we would like to do over the next three years as part of our strategic plan is to implement a more systematic approach to volunteer management. While we have some good processes in place for the board, we hope to extend these to the committees as well so that finding new and qualified volunteers no longer requires "arm-twisting." We are looking for nominations for a board treasurer and two board directors-at-large. The directors-at-large will likely also be required to chair either the Imaging Committee or the Quality Assurance and Radiation Safety Advisory Committee. We are also changing the Science in Education Committee so that it becomes two committees: the Science Committee and the Education Committee. The chair of the Science Committee will likely also serve as a director-at-large on the board starting in 2018. We have already received quite a bit of interest in the new Science Committee – it is great that our members are interested in stepping up and it certainly bodes well for our future. Perhaps you are interesting in serving on a committee or the board as part of your leadership journey? If so, we would love to hear from you. More information about the nominations process can be found in this issue.

To further support volunteer management and expand the ways in which our members can connect with each other, we are inviting members to provide us with more information about their expertise and interests as part of the membership renewal process. This information will help us serve you better and we appreciate you taking the time to provide it to us.

I am also pleased to let you know that COMP is working on a contribution agreement with the CNSC. The contribution money would be used to support projects aligned to three major objectives: innovation, guidelines, and professional development and networking. COMP members are invited to submit requests for funds that have been allocated to the innovation portion of the agreement, in which funds are available to support the development of innovative tools for addressing radiation safety and security issues. Examples include, but are not limited to, the development software systems to facilitate quality control of safety systems, tools to enable consistent and comprehensive equipment service logging, and tools to enable sharing of quality control and equipment servicing data.

Our focus over the next few months will be continuing the work on our upcoming meetings. The 2017 Mammography Workshop and Winter School on Quality

Ms Nancy Barrett

Improvement and Radiation Safety will be taking place at the Fairmont Le Chateau Montebello, the world's largest log cabin, from February 1th to 5th. The planning committee under the leadership of Thor Bjarnason has been working hard on this initiative. It is a brand new program for COMP, a first in Canada, and an important investment in the medical imaging community. I encourage you to attend and/or spread the word about this program. Thank you to the program sponsors: Varian, GE Healthcare, and Siemens.

The 2017 Annual Scientific Meeting will be taking place in Ottawa from July 12th to the 15th. As you know, Canada is celebrating its 150th anniversary in 2017, and while we are fortunate to live in a country that is beautiful from coast to coast, it will be great to celebrate this important milestone in the Nation's Capital. I encourage you to consider joining us for the science, professional development, and the opportunity to network with your colleagues.

As always, thank you for your support and please contact me anytime with ideas and feedback.

MESSAGE FROM THE EDITOR

Happy new year, everyone! I hope everyone had a great holiday/ break from their clinic. This issue finds us with another big one. Lots of enjoyable content.

As you may have noticed, we have another new guest article; this one by a colleague of mine from the Department of Bioethics at Dalhousie, Lynette Reid. She has a good connection with Canadian medical physics as well since her father was a medical physicist, Bill Reid, who worked at the Saskatoon Cancer Clinic back in the day.

We're also starting a new section called "Noteworthy Items." There's an announcement in this issue with more details. This is meant to highlight some of the accomplishments of medical physicists and departments across the country, so please send us items of noteworthiness!

Enjoy this issue! And remember, YOU may every issue of InterACTIONs possible, so please submit! If you have any questions or suggestions, please ask me.

Chris Thomas

NEW COMP MEMBERS

Please welcome the following new members who have joined COMP since our last issue:

Last Name	First Name	Institute/Employer	Membership Type
Burns	Levi	University of British Columbia	Student
Dohatcu	Andreea	University of Texas Medical Branch at Galveston	Full
MacAskill	John	Dalhousie University	Student
Matthews	Rebecca	University of British Columbia	Student
Maynard	Evan	University of Victoria	Student
Parker	Melissa	McMaster University	Student
Reynolds	Michael	Cross Cancer Institute	Associate

We wish the following COMP members a happy retirement:

Andrew	John	Charlottetown, PEI
Lightstone	Alexander	Thornhill, ON
Wilkins	David	Ottawa, ON
Ziegler	Bill	Regina, SK

CNSC FORUM:

"FORMS FIRST": NEW LICENCE APPLICATION FORMS AND GUIDE FOR CLASS II LICENSED ACTIVITIES AND FACILITIES

Mike Heimann
CNSC, Senior Project Officer, Accelerators and Class II Facilities Division

The CNSC has recently published for consultation a draft version of a new licence application guide and corresponding application forms. This document, in keeping with the CNSC's usual prowess in coming up with snappy names, is known as "REGDOC 1.4.1 - Licence Application Guide: Class II Nuclear Facilities and Prescribed Equipment". This document provides information to applicants in preparing and submitting applications for a licence to carry out ALL activities related to Class II nuclear facilities and prescribed equipment.

Yes, that's right, I said ALL Class II activities and facilities. REGDOC-1.4.1 consolidates three published licence application guides (RD/GD-289, currently used for non-medical accelerators; RD/GD-120, currently used for radiotherapy; and RD/GD-207, currently used for servicing) and two draft licence application guides (C-235, once used for manual brachytherapy; and C-238, currently used for oil & gas exploration licences) into a single guide for Class II nuclear facilities and prescribed equipment. With this consolidation, guidance for all applicants is provided in one convenient location.

In addition to consolidating everything into one guide, CNSC has also taken a slightly different tack in the way the guide and forms are organized. As is the case with most of our current guides and forms, licence application guides have traditionally been used as "master" documents, and the application forms were mere appendices. The emphasis in this case has been reversed. The vision is that the applicant will primarily use the forms and only refer to the guide if they need more detailed guidance on a specific section. This approach is similar to that used by the Canada Revenue Agency with its T1 tax return form and guide. The electronic application forms associated with REGDOC-1.4.1 have been enhanced with "tool tips" (guidance that appears in a pop-up dialogue box when you roll your mouse over it). It is expected that experienced licensees will have sufficient information in the enhanced forms to minimize or eliminate entirely the need to refer to the guide itself. This new "forms first" strategy will hopefully mean less flipping back and forth between the guide and the form.

The CNSC has also been making a big push over the past few years to move towards paperless licensing. Most of our current application forms are already fillable PDF's, and REGDOC 1.4.1 continues this trend. In fact, the forms do not even include a signature box, meaning there is no need at all to print the forms – once filled, they can be sent directly to CNSC in electronic format.

As mentioned earlier, the new guide and forms are currently out for comment, meaning we very much want to hear from you, the people who will be the primary users of these forms for the next several years. We've arranged it so that the draft forms and guide can actually be used right now to apply for licences, even though they're still in the consultation phase – we figured the best way to see if anything needs adjustment is to let people actually use the forms "in the field". And while some people might think that submitting comments to a government agency is akin to throwing paper airplanes into a black hole, I assure you that we actually do look at and disposition each and every comment that we receive, so please don't be shy!

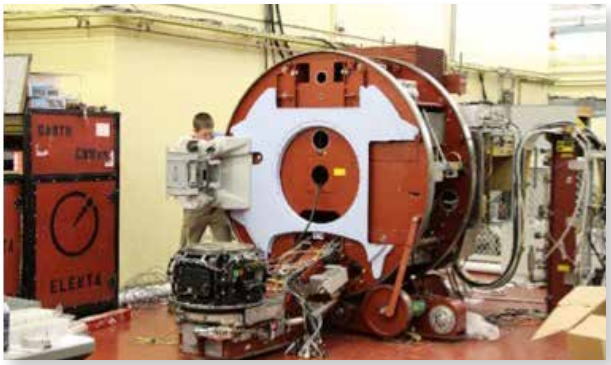
The new forms and guide are currently available on our website at http://www.nuclearsafety.gc.ca/eng/acts-and-regulations/regulatory-documents/index.cfm#R5 (shortened URL: https://goo.gl/E4IcMT). If you wish to submit comments, please select the HTML version of the document on that page, as each section of the guide has a clickable button that will let you submit comments for that specific section. The draft documents will be in the consultation phase until February 27 2017, so if you have the time, we would very much appreciate it if you could send us your comments!

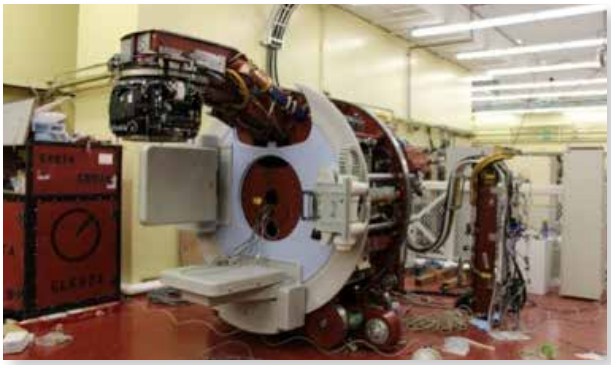
A NEW NATIONAL FACILITY FOR CANADIAN MEDICAL PHYSICISTS

Rick Kosierb
Project Officer: Accelerators and Class II Facilities, CNSC

On the 8th November 2016, NRC staff and external guests came together to celebrate the installation of a new linear accelerator facility within the linac laboratory of the National Research Council, located in Ottawa. The Ionizing Radiation Standards group at the NRC has operated an Elekta Precise linac since 2002, using it to develop absorbed dose primary standards, investigate detector performance, and provide direct calibrations of clinical ionization chambers. This machine has now been joined by a state-of-the-art Elekta Synergy linac with Agility head, CBCT, and MV portal imaging. This is a step change in operational capability for the lab and provides a number of new avenues for research, as well as guaranteeing linac calibration services into at least the mid-2020s.

The following photos show the install and build from bare floor to complete system:





1) *Note the easy access for installation and maintenance.*
2) *No prizes for guessing the decade responsible for the paint colour on the wall!*
3) *No couch needed for a metrology linac.*

The guests at the opening included several people with COMP connections, including Paul Johns (Professor, Carleton University), Miller MacPherson (Head of Physics, Ottawa Hospital), Horacio Patrocinio (McGill University and COMP President-Elect), Yani Picard (CNSC), and Nancy Barrett (COMP Executive Director). The guest of honour was the NRC Vice-President for Emerging Technologies, Geneviève Tanguay.

Left-to-right: Jason Gazo (NRC), Claudiu Cojocaru (NRC), Bryan Muir (NRC), Miller MacPherson, Jason Smale (Elekta), and Frédéric Tessier (NRC).

And there was, of course, a suitable cake!

A multi-slice approach was taken to the cake distribution but there was no retrospective reconstruction from what was scattered....

Although sharing a success is always worth doing, the main reason for this article is to highlight that NRC facilities are not just for NRC researchers and NRC calibration services. We see this new linac (along with the other facilities operated by the IRS group) as a resource for Canadian medical physicists from coast to coast. We've only just started to get to grips with this new machine and to understand its capabilities for reference dosimetry and beyond, but we'd definitely be interested in hearing from COMP members regarding ways it can contribute to improved dose delivery in radiation therapy. Feel free to brainstorm and give us a call!

BOOK REVIEW: ADVANCES IN MEDICAL PHYSICS, VOLUME 6

Reviewed by
Parminder S. Basran, BC Cancer Agency

Title: Advances in Medical Physics, Volume 6

Editors: D.J. Godfrey, J. Van Dyk, S.K. Das, B.H. Curran, A.B. Wolbarst

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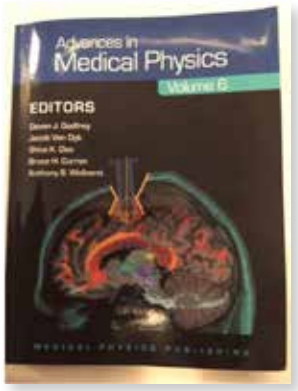


REVIEW

Advances in Medical Physics (Volume 6) is the most recent edition of a "biennial review of the treatments and techniques on the cutting edge of medical imaging and treatment" from Medical Physics Publishing. If you are familiar with the series, then this latest volume will be in keeping of the previous edition (Vol. 5) in terms of style, content, and intended audience. Generally, the series is aimed at educators, researchers, clinical medical physicists, biomedical engineers, and even physics enthusiasts to help them marshal through recent advances in imaging and therapeutics.

This volume is 323 pages long with 15 distinct and non-overlapping topics. Chapters in the book are organized by topic, providing the reader the opportunity to read chapters of interest a la carte. Topics range from more "traditional" medical physics (advances in ultrasound imaging, brachytherapy, HIFU), to more specialized techniques (spectral imaging with CT, targeted alpha therapy, photoacoustic imaging, design and development of linac-MR hybrids, applications of Cherenkov emissions, small animal radiotherapy and imaging), plus some didactic and general interest topics for medical physicists (see later in this review). Some chapters are quite short (6 – 14 pages), whereas others are longer (30 – 32 pages). Each chapter ends with a lengthy list of references, which is helpful for the a la carte reader.

In terms of complexity, there are enough equations peppered throughout the book such that it could only be appreciated by an audience well versed in mathematics and physics.

In keeping with the stylist changes introduced in Volume 5, the margins are tight (less than 2 cm along the edges, approximately 11pt serif font, printed on 8"x11" pages), which can make the text "busy" for some. Each chapter has both colorized and black/white figures and tables. While the uses of colorized figures are greatly appreciated, figures within chapters often have different resolutions such that some figures are very high quality and others are not. This can be distracting at times, but not prohibitively so. Each chapter reads with a similar trajectory in relaying content: a broad introduction, definitions of scope and goals in the chapter, the content, and a summary often with future directions. Overall, writing styles change between chapters due to the fact that each chapter is prepared by different authors. All chapters are well written but some are easier to read than others (a notable mention is Chapter 4: Advances in Ultrasound Imaging).

Some highlights and interesting chapters are as follows. Dr Jerry Battista provides a chapter exploring the analogy of MR and linac physics with guitars (Chapter 7: The Physics of MRI and Linacs: Music to My Ears), and another chapter exploring the radiation risks of inter-planetary space travel (Chapter 13: Radiation Exposure on a Voyage to Mars: All Aboard?). While these are not necessarily "advances" in medical physics, the topics are in keeping in the traditions of previous editions for providing interesting and well written content. Chapter 10: Advances in Brachytherapy Physics nicely balances historical developments of brachytherapy physics with recent developments while providing

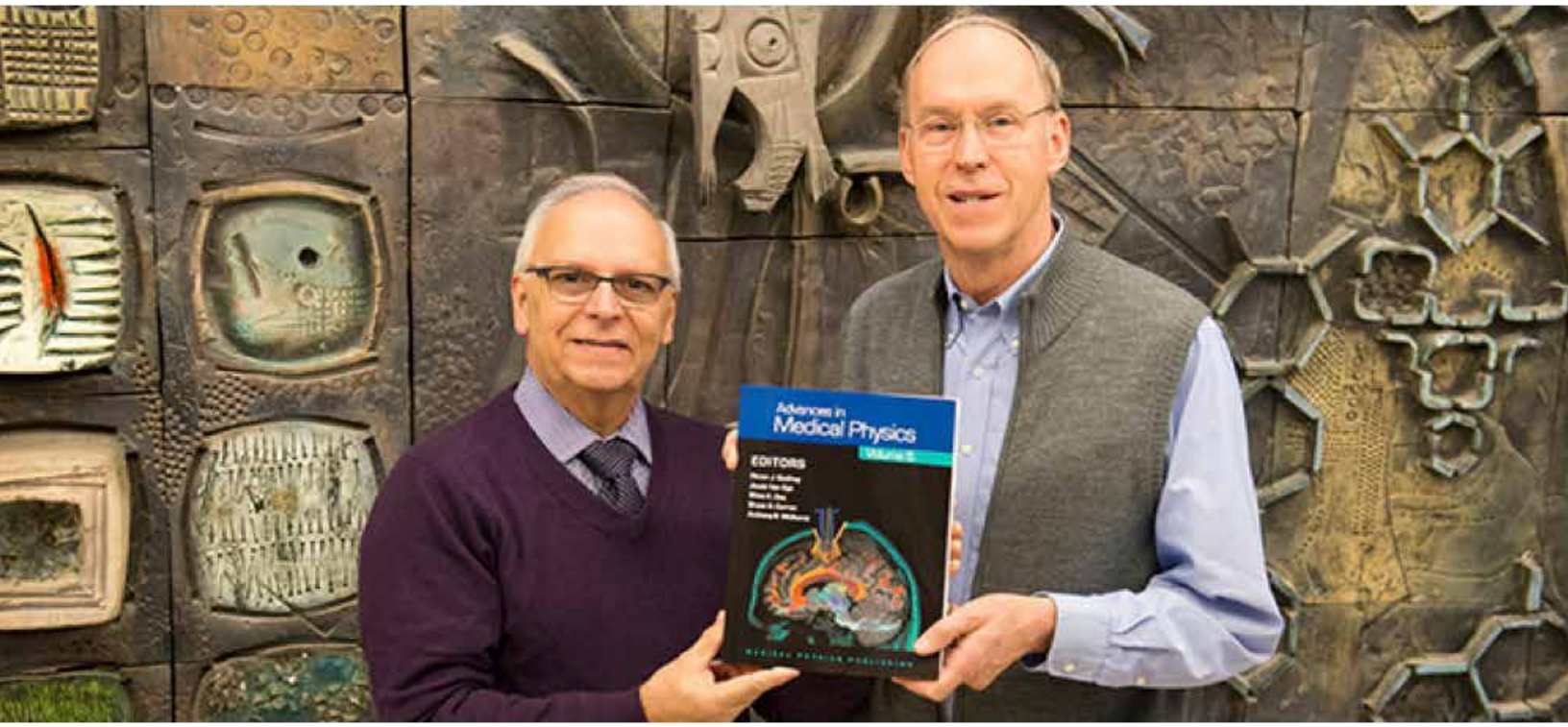
clinically useful equations and content. Some helpful definitions and equations in practical radiobiology are provided in Chapter 12: Radiobiological Aspects of Some Current Issues in Radiation Oncology, Medical Physics, and Radiological Protection. While lengthy (30 pages), Chapter 6: Design and Development of Linac-MR Hybrids will be helpful for many medical physicists in preparing for the wave of MR-linac technologies. And while short (6 pages), Chapter 14: EPA's Federal Guidance Authority and Recent Guidance on Radiation Protection for Diagnostic and Interventional X-ray Procedures provides a concise history of the topic along with some bullet point recommendations for federal agencies.

I took the effort of reviewing all 96 chapter titles in the previous five editions to see how much content might have been repeated or recycled. With the exception of (expected) updates in image guided therapeutics and possibly some content on radiation safety, there is surprisingly very little repeated content over 10 years. The editorial task of collating and presenting unique medical physics topics is a challenging one, and the editors should be commended for successfully doing this again. One subtle issue is that while a chapter might describe a particular type of technique or technology, authors tend not to compare or contrast their technique or technology with competing ones.

This is a good series for medical physics learners and this edition is no exception. If you are a clinical medical physicist, you will find many of the chapters useful. If you teach medical physics at the undergraduate or graduate level, this book may be useful for keeping your general medical physics "chops" up to date and providing fresh content for survey courses in medical physics. The book will be useful for academic medical physicists interested in exploring new research topics since each chapter easily initiates the reader with the new content and references.

You may be pleased to learn that both a soft cover and an eBook are once again available for purchase; however, I struggle to understand why (again) the eBook is the same price as the soft cover. The golden question for many medical physicists is if it is worth 90USD of their precious professional allowance funds. I won't answer that, but I will say that this volume has high quality content that is well presented by experts, with a plethora of figures, tables, and references. If you have not updated your textbook library in the last five years and are looking to update your medical physics knowledge base, this book will be useful and is of reasonably good value.

Editor's Note: *Here is a link to an article about the publication of this book :* http://www.schulich.uwo.ca/gradstudies/about_us/monthly_newsletter/2016/november/advancing_medical_physics_one_page_at_a_time.html



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CHIEF EXAMINER'S REPORT

Renée Larouche (CCPM Exam Chief Examiner)
Centre hospitalier de l'Université de Montréal, Montreal, QC

This is my second report as chief examiner of the CCPM. The first year has been a lot of work. I have been fortunate to receive help from a great number of members of the college. About 20% of the membership was involved in the 2016 exam cycle. I am confident that as many will again help out in the 2017 exam cycle. I have received up till now a good response to invitations that have been sent out. For those wishing to join the examination committee, just contact me at chiefexaminer@ccpm.ca with your resume. We need markers and question writers/reviewers. The only requirement is that you are a member in good standing of the college.

Last summer, I was unable to travel to the Annual General Meeting held in St-John's, Nfld. and Labrador. This situation was unplanned. I was looking forward to meeting many of whom helped out through the year. Alasdair Syme, deputy examiner, was put in the difficult situation of taking my role for the fellowship examinations. My appreciation goes to the fellowship examination committees, the Fellowship candidates, and Alasdair for their efforts, flexibility and getting the job done.

As presented last year, the trend in MCCPM passing rate continues to improve (See table below). Candidates are better prepared. The 2016 exam cycle was the first to require CAMPEP education or residency to be eligible for the exam. Due to a three year window allowed between credentialing and exam, the 2017 exam cycle will be the last that some candidates not meet the new rules.

Year	MCCPM	FCCPM
2016	73.3%	70.0%
2015	69.0%	50.0%
2014	63.3%	64.3%
2013	53.8%	50.0%

Since I was not at the AGM, I was not able to welcome the new members and fellows within the college. The 2016 successful new members are:

Radiation oncology subspecialty:

- Hossein Afsharpour
- Ghada Aldosary
- Steven Babic
- Steven Bartolac
- Danis Blais
- Michael Fan
- Ali Fatemi-Ardekani
- Lisa Glass
- Mathieu Goulet
- Amr Heikal
- Amjad Hussain
- Hans-Sonke Jans
- Yuji Kamio
- Tania Karan
- Amimohamad Keyvanloo
- Anthony Kim
- Bryan Kim
- Michel Lalonde
- Dominique Martin
- Theodore Mutanga
- Moti Paudel
- Yannick Poirier
- Mohammad Rezaee
- Manuel Rogriguez Vega
- Khushdeep Singh
- Todd Stevens
- Justin Sutherland
- Tony Teke
- Kundan Thind
- Pier-Yves Trépanier
- Matt Wronski
- Karim Zérouali Boukhal

Diagnostic imaging subspecialty:

- Ali Moulay Nassiri
- Slimane Rahmani

The 2016 successful members with fellowship distinction are:

- Michelle Hilts
- Daniel La Russa
- Marija Popovic
- Xia Wu
- Heping Xu
- Atiyah Yahya
- BeiBei Zhang

Congratulations to all in your achievement.

For the 2016 exam cycle, the college used for the first time new exam software, Examview, to organize the Parts I and II questions. We intend to further implement its use in the 2017 exam cycle year to enable analytics. This will help the college improve the multiple choice question databases. It would also allow the college to adopt new technologies in the exam process (for example, computer based exam). For the moment, the board is exploring how new technologies can enhance the examination process.

For those preparing for the 2017 exam cycle, know that the process is highly supported by existing members. We are continuously improving the exam.


Renee Larouche

TING AND FRANK HONOURED IN LONDON, ONTARIO AND BEYOND!

Jerry Battista
London Regional Cancer Program and Western University, London, ON

I recently attended a surprise celebration event that formally announced the establishment of two research chairs in medical imaging. These new positions will allow continuation of outstanding imaging advances made at the Lawson Health Research Institute (LHRI) in London, Ontario. Through personal donations, St. Joseph's Foundation, and Western University, a total of $6.5 million is endowed to support the future salaries of two top-notch researchers in perpetuity.

The Ting-Yim Lee Chair in Cardiac Computerized Tomography (CT) Imaging Research will enable recruitment of a clinician-scientist specializing in new approaches to cardiac assessment and therapy. The ***Frank Prato Research Chair in Molecular Imaging*** is aimed at advancing molecular imaging using nuclear medicine and MRI techniques, for example. In his presentation, Frank described our collective COMP mandate succinctly:

> *"We realize patient stewardship includes research as an essential part of the patient care continuum and that discovery, through research, leads to improved patient care."*

I have had the pleasure of knowing these two individuals for "several" decades. They deserve our collective recognition, respect, admiration, and applause. Frank shared a lab space with me as a graduate student at Princess Margaret Hospital in the mid-1970s, and we sometimes broke into Italian opera on boring Friday afternoons; Frank's voice continues this activity well beyond Fridays. I first encountered Ting when I started working at the Cross Cancer Institute in Edmonton (1980's) after he arrived in Winnipeg from England. We both had responsibility for supporting clinical CT scanners in diagnostic radiology and often compared notes on acceptance and QA test results.

In London, it is sometimes difficult to discern "who has accomplished what in imaging" because of city-wide excellence in biomedical imaging research. From my viewpoint, one of the most successful software tools that has "translated" into real patient care was developed by Ting Lee. Through a global commercial licensing agreement, the world now has access to quantitative reproducible perfusion CT imaging. This development has permeated (Ting likes the word "permeability") into applications for cancer and neurovascular/cardiovascular disease. Similarly, Frank has been very successful with leading multi-million dollar CFI grants that have brought the first PET-CT and PET-MRI machines into Canada for early assessment of their clinical benefit and development. Furthermore, he has led the charge on securing medical radioisotopes for nuclear medicine with an array of Canadian cyclotrons, in an effort to protect the world from a shortage caused by an ailing senior nuclear facility at Chalk River. If you start to talk molecular imaging lingo, I can assure you that Frank is well versed as he has been active in this field - well ahead of the current trend. He understands kinases and molecular pathways in an effort to get contrast agents to "stick and glow" in cells of interest! Please join me in sending congratulatory messages to Ting and Frank.

TWO NEW RESEARCH CHAIRS ANNOUNCED FOR IMAGING

MILESTONE FOR HOSPITAL-BASED RESEARCH AND PATIENT CARE

In a historical-first, St. Joseph's Health Care Foundation and Western University announced two research chairs that are a critical step toward new approaches in imaging research and patient care in London and around the world. The combined value of both innovative new research chairs is $6.5M, which will be endowed in perpetuity to advance imaging research at Western University and Lawson Health Research Institute.

The research chairs have been named after the two scientists who are revolutionizing health care through their groundbreaking imaging research – Drs. Ting-Yim Lee and Frank Prato.

"These chairs build on the legacy of exceptional imaging leadership across our academic, research, and healthcare organizations. They are a critical step towards new approaches in medical technology and hospital-based research that will revolutionize patient care," says Dr. Gillian Kernaghan, president and CEO, St. Joseph's Health Care London.

Research teams in the city are using state-of-the-art imaging technology to help clinicians better predict and diagnose illnesses before their unset. And uncover why, and how, illness forms to one day find a cure to some of the most devastating diseases in the world.

"We've come to know medical imaging as one of the cornerstones of innovation and discovery at Lawson, and the two new research chairs represent two monumental leaps forward in the field of imaging research," adds Dr. David Hill, Lawson scientific director.

The Ting-Yim Lee Chair in Cardiac Computerized Tomography (CT) Imaging Research has been established through the generosity of Ting-Yim and Maggie Lee and a joint funding collaboration between St. Joseph's Foundation and Western University.

Dr. Ting-Yim Lee is a scientist and professor of the Schulich School of Medicine & Dentistry, medical physicist at St. Joseph's Health Care London, and a scientist with Lawson's imaging program. Through his leadership, The Ting-Yim Lee Chair in Cardiac Computerized Tomography (CT) Imaging Research will transform the way clinicians diagnose, and prevent, severe tissue damage in persons who have experienced a cardiac event.

"Over the past 28 years, St. Joseph's and Western have created opportunities for me and supported my research endeavor in many ways. I feel this gift is the best way to repay the help that I have received. We are onto something that is worthwhile and successful. By setting up this chair, there would be a significant person – a clinician-scientist – to lead the next phase of the cardiac CT program. I am really humbled that the institutions see the value in this research and have contributed to guarantee that we have the necessary leader to carry forth this development," says Dr. Lee.

This chair represents the next phase of CT imaging research, focused on developing software and new methods that will save people's lives.

The Dr. Frank Prato Research Chair in Molecular Imaging has been established to further enhance scientific understanding in the specialty of molecular imaging – building upon St. Joseph's internationally-recognized leadership in imaging excellence.

Dr. Frank Prato is a scientist and professor of the Schulich School of Medicine & Dentistry, chief medical physicist at St. Joseph's Health Care London, and the founder and program leader of Lawson's imaging program. Through his visionary leadership, The Dr. Frank Prato Research Chair in Molecular Imaging will improve the way clinicians effectively diagnose disease and actively correct the course of treatments in real time for life-threatening illnesses.

"I am truly honoured to have this research chair in molecular imaging named after myself. Over the past 40 years, I have been privileged to work with outstanding people and incredible resources. Today medical imaging has become a cornerstone of care at St Joseph's Hospital. Here at St Joseph's we realize patient stewardship includes research as an essential part of the patient care continuum and that discovery, through research, leads to improved patient care. The holder of this chair will help lead us into the next frontier of medical imaging directly benefiting our local, national, and global communities," says Dr. Prato.

This chair represents the next phase of precision medicine using molecular imaging to distinguish between varying forms of dementias, cancers, and to detect the early onset of cardiac disease and diabetes before symptoms emerge.

"With this historic announcement, we are marking a new phase of partnership and collaboration between our institutions and celebrating the generosity of donors who have helped create two significant research chairs," explains Dr. Amit Chakma, president and vice-chancellor, Western University. "Together we will ensure that London remains at the forefront of medical imaging research and teaching."

These chairs will also have a greater role to play in the local health care community by attracting, and retaining, the research talent needed to innovate the way London's hospitals and Western tackle the most pressing health issues Canadians face today.

Editor's note: *This article has been reprinted with permission from the Lawson Health Research Institute.*

J.R. CUNNINGHAM YOUNG INVESTIGATORS SYMPOSIUM - WHAT WILL YOU PRESENT THIS YEAR?

Calling all graduate students!

It's not too soon to think about what work you would like to submit to the annual J.R. Cunningham Young Investigators Symposium at the COMP Annual Scientific Meeting this summer in Ottawa, Ontario. Don't miss this chance to showcase your work and visit an incredible part of Canada's 150th birthday! The Young Investigators Symposium (YIS) is a standout highlight of every COMP meeting with many participants agreeing it is their favourite scientific session of the conference.

The YIS is named in honour of John Robert Cunningham (" Jack" as he is universally known). Dr. Cunningham is familiar to many medical physics students in Canada through his textbook *The Physics of Radiology*, co-authored with H.E. Johns, and known simply as "Johns and Cunningham". Although officially retired, Dr. Cunningham remains active in the field and is usually happy to present prizes to the YIS winners each year; a real treat.

It is an honour to be selected to present as part of the YIS: only the authors of the top 10 scoring abstracts submitted to the YIS are invited to speak each year. If you are accepted as part of the competition, you should add this to your CV! Abstracts are scored based on scientific merit, as well as written clarity, relevance, and potential impact of the work. Student presentations during the symposium are scored based on scientific excellence, presentation flow, oral delivery, quality of slides, and the ability to stay on time! Final winners (1st, 2nd, and 3rd place prizes are awarded) are determined by combining both abstract and presentation scores. Competition is always fierce and taking home a YIS prize is certainly something to be proud of.

Stay tuned to the COMP news, as abstract submission deadlines will be posted soon.

The COMP community is looking forward to hearing about the interesting research you do. **What will you present this year?**

See you in Ottawa!

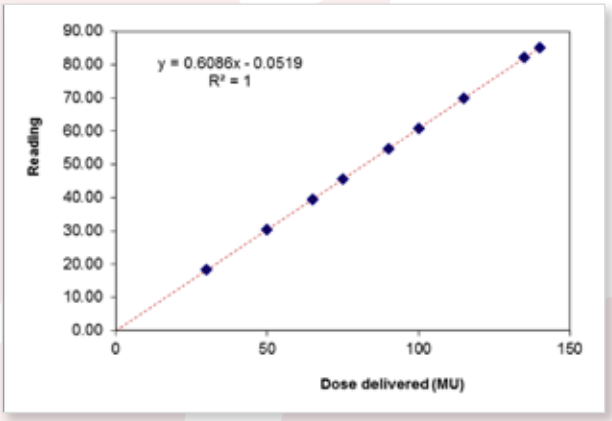
SEARCH TO FIND CANADA'S OLDEST PIECE OF FUNCTIONING MEDICAL PHYSICS EQUIPMENT

In 2017, COMP is coming to Ottawa, home to Canada's Museum of Science and Technology (also due to re-open in 2017, but only later in the year). We thought it would be fun to try to tie the two things together by running a competition to see what museum pieces are still out there in clinics across Canada. We're assuming that you're not still using a gold-leaf electroscope for your ion chamber measurements, but I'm sure quite a few of you have some nice items in polished wooden boxes, at the back of a cupboard somewhere in the basement, behind the filing cabinets, or moved to your office for 'safekeeping'.

The rules for this competition are quite simple:

1) Find your oldest piece of equipment that is transportable (this rules out 50-year old x-ray tubes, 1930s radium sources, and the like).
2) Test it to verify that it is working.
3) Send in documentary evidence to prove (1) and (2).
4) Depending on the number of entries, we may have more than one category, e.g., oldest radiation detector, oldest electrometer, oldest ancillary equipment (barometer, thermometer, etc, but no mercury thank you).
5) The judges' decision is perfect and final.
6) Our ultimate aim is to get the winners pieces shipped to NRC for calibration and then displayed at the COMP 2017 ASM. We're still working on this step.
7) NRC staff members are not permitted to enter, due to our tendency to never throw anything away …

As an example to get you going, the Ionizing Radiation Standards group at NRC has an NE2502 electrometer, as shown below. It's from the mid-1970s (unfortunately no date of manufacture), and the equipment passed our standard electrometer calibration procedure. A real beam measurement showed excellent linearity and low noise. You could use it today for your TG-51 calibration!



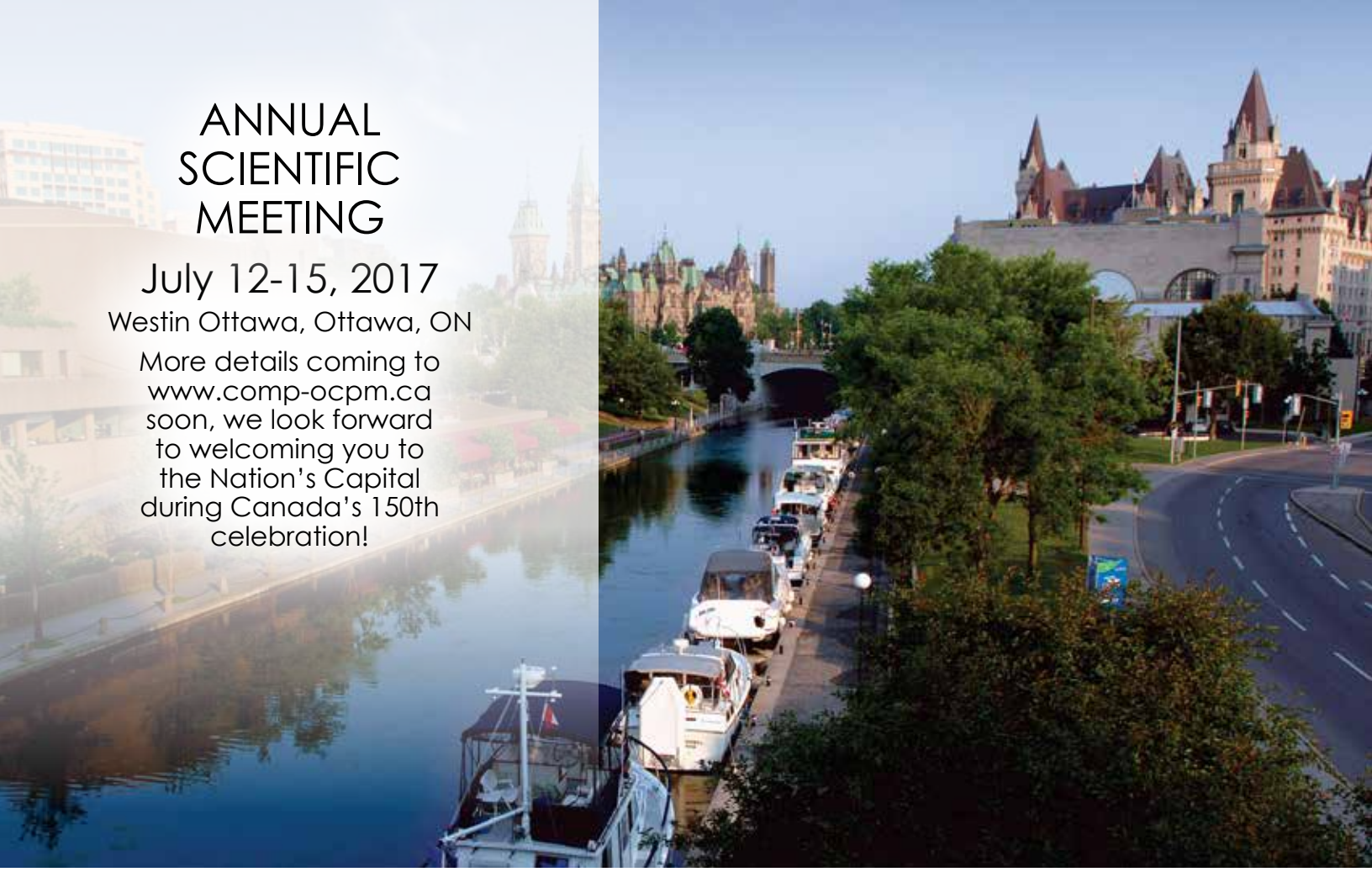
Please send your documentary evidence (not your equipment just yet) to:

Malcolm McEwen

Ionizing Radiation Standards, National Research Council

1200 Montreal Rd, Ottawa, ON, K1A0R6

malcolm.mcewen@nrc-cnrc.gc.ca



UPDATE ON THE SCIENCE AND EDUCATION COMMITTEES

Stephen L. Breen
Princess Margaret Hospital, Toronto, ON

The COMP Science and Education Committee was initiated in 2009 to address gaps in COMP's organization of the Annual Scientific Meeting and the Winter School. Since its inception, one of the principle goals of the committee has been to provide continuity in the operation and appearance of these events. The SEC also oversees the Students' Committee, and COMP's contribution to CAMPEP.

In the last year, the COMP board has determined that from an operational and financial perspective, the SEC would better serve COMP's membership by separating into two science and education committees.

At our recent mid-year board meeting, it was decided that to provide continuity, Dr. Stephen Breen would continue to serve the membership as director-at-large and chair of the new Education Committee until the end of his term in 2018. A new director-at-large will be added to the board, via elections in 2017, to serve as the Science Committee chair.

The Education Committee will maintain responsibility for the Students' Sub-Committee, the Winter School, CAMPEP, and will add responsibility for a new Residents' Sub-Committee. Although its terms of reference are not finalized, the Science Committee will have responsibility for the Annual Scientific Meeting. The Science Committee will be concerned with subjects such as grants and funding, and addressing the needs of COMP's academic and research community.

In the coming months, COMP will seek volunteers for both committees, particularly for a member willing to sit on the board as the Science Committee chair. Interested members are asked to contact Nancy Barrett, executive director (nancy.barrett@comp-ocpm.ca). An open meeting will be held during a teleconference in early January for members who wish to learn more about opportunities to participate as chairs and members of these committees.

ETHICAL REASONING … FOR BEGINNERS?

Lynette Reid
Department of Bioethics, Dalhousie University (lynette.Reid@dal.ca)

The title of this column is deliberately provocative. Is there any such thing as ethical reasoning for beginners? Don't people learn the fundamentals of ethics before they ever reach school? Is there anything we can teach them in a graduate program that can make them better people?

It's true that there is no such thing as ethics for beginners. By the time anyone becomes a medical physicist, they have been reasoning ethically in their own lives for decades. You might even be familiar with your own ethical "style." Perhaps you consider yourself a highly principled person, or a flexible pragmatist who focuses on good outcomes.

When we take on professional responsibilities, we are challenged in new ways with problems we never learned to resolve when we learned as children to be fair and kind.

Some of the most difficult challenges we face as professionals arise when we try to act on our own intuitive sense of what is right and wrong and the structures we work in leave us between a rock and a hard place. Imagine the physicists who ended up telling the *New York Times* that they had warned their hospitals about the risks of new IMRT systems in the 1990s and the need for additional safety systems, and imagine the choices some faced if their warnings went unheeded.[1] Challenges arise too when others turn out to have very different moral responses that we expect. Imagine that you and a colleague had been involved in one of the resulting errors — and your colleague assumed you would help cover it up.

And then there are cases where the challenge is not a matter of disagreement or feeling thwarted — we ourselves can't figure out the right thing to do. Is it obvious what we should do with incidental findings in neuroimaging research?

Communication often breaks down quickly in these situations of ethical dilemmas, distress, and disagreement. We may find it difficult to explain our judgments. They go to the heart of who we think we are as persons and professionals. The threat of strong negative feelings of guilt and betrayal leads to powerful cognitive biases as we try to square the situation with our faith in our own self-worth and that of friends and colleagues.

For centuries, people turned to religion for moral guidance, and for many today, religion is still a place for substantial moral reflection. But in the early modern era, when European thinkers were questioning traditional authorities, leading intellectuals proposed systems for the rational evaluation and ordering of our ethical duties as individuals and our collective choices as a society. The theories they devised give us vocabularies and systematic ways of thinking that help us to communicate and come to good decisions when our values are challenged, and still inform our thinking around ethical questions in the health professions.

Two great theories of the 18th and 19th centuries—utilitarianism and Kantian ethics—are still touchstones in applied ethics today.

Utilitarianism focuses on the consequences of an action or policy. Jeremy Bentham (1748-1832) proclaimed the maximization of pleasure and the minimization of pain to be the touchstones of ethical decision-making. If all our concerns could be reduced to two poles on one scale, then ethical reasoning could become mathematical: by adding and subtracting favourable and unfavourable consequences, we could determine the right course of action. Bentham even put the theory into a useful poem, adding some nuance to these two notions:

Intense, long, certain, speedy, fruitful, pure -
Such marks in pleasures and in pains endure.
Such pleasures seek if private be thy end:
If it be public, wide let them extend
Such pains avoid, whichever be thy view:
If pains must come, let them extend to few.[2]

Whenever we speak of ethical choices as a good balance of harms and benefits, or claim that the ends justify the means, we are using the kind of ethical reasoning that Bentham systematized. Consider the risks of radiation treatment before the 90s and the different risk profile of IMRT and other focused technologies since the 90s. Before, many more people were harmed with the side-effects of radiation on surrounding healthy tissues. The more focused treatment enables physicists to 'let harms extend to few', but the programming is more complex and doses elevated — such that the results of a rare mistake may be much more severe: more "intense" and "long." Harms from radiation exposure are also "fruitful" — there may be sequelae decades later. Certainly, none of these harms are "pure" harm — some harm and risk of harm is necessary to achieving a therapeutic benefit.

Rational decision theory, which informs both clinical reasoning and health economics, descends directly from utilitarian theory.

Deontological (Kantian) decision-making focuses on duties and principles. In deontological thinking, a set of duties or principles defines what is right or wrong, almost despite consequences. Immanuel Kant (1724-1804) gave this approach its most rigorous expression: he grounded duty in a deep connection between freedom and rationality. His "categorical imperative" says that right action is action according to a rule ("maxim") that one could coherently will everyone should adopt. This idea is like the familiar Golden Rule — do unto others, not just as you would want them do unto you, but as you could rationally and coherently will that we should all want others to do unto us.

Holding to principles despite consequences might sound extreme, but many would think lying to someone wrong, even if no one ever finds out about the lie and it has no other consequences. Few think this duty is absolute, as Kant did. But we do think some duties are absolute: to appeal to a medical example, no number of lives saved by transplant could motivate us to take the life of one person in order to harvest their organs.

Kant also formulated the categorical imperative as respect for individual dignity and human worth, derived from our nature as rational agents (here "rational" means something more like "capable of reason in the way that human beings are").

In contemporary health care ethics — indeed, in law too — we place a strong emphasis on respecting patient autonomy. Clinicians are duty-bound to defer to the capable patient's wishes in accepting or declining proposed treatments, whatever the clinician's own (consequentialist) judgment might be about "best interests." On Kantian grounds, you might think that research findings should be returned to individual participants: it would be paternalistic to withhold information from people about their own health.

Few applied ethicists believe that a single theory delivers the right answer for every dilemma. Instead, ethicists work in collaboration with scientists, health care providers, the public, and policy makers to clarify the values at stake in a decision and come to reasonable solutions. These sometimes involve prioritization — one value trumping others — but more often they involve principled compromise, accommodation, and mitigation of harms.

[1] Walter Bogdanich, (2010-11). "The Radiation Boom" Series. New York Times. http://topics.nytimes.com/top/news/us/series/radiation_boom/index.html

[2] Bentham (1781), Introduction to the Principles of Morals and Legislation, Chapter IV, n. 20.

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STRATEGIC PLAN 2016 – 2019

The 2016 – 2019 strategic plan of the Canadian Organization of Medical Physicists (COMP) was created to articulate our ambitions and guide our actions. It was prepared as part of the strategic planning process undertaken in 2015 – 16. Four key strategic priorities have been identified and for each priority, specific measurable tactics have been determined that will focus our activities for the next three years.

COMP VISION AND MISSION

VISION:

to be the recognized leader and primary resource for medical physics in Canada

MISSION:

to champion medical physicists' leadership in patient care through education, innovation, and advocacy.

STRATEGIC PRIORITIES:

1. Advocate for medical physicists as leaders in innovation and technology implementation in health care.
2. Ensure medical physicists in Canada can create and have access to relevant scientific and professional content.
3. Connect the entire Canadian medical physics community: to each other, to COMP, to other professionals, and to resources.
4. Engage in strategically aligned international initiatives.

COMP
Canadian Organization of Medical Physicists

OCPM
Organisation canadienne des physiciens médicaux

www.comp-ocpm.ca

COMP STRATEGIC PLANNING PROCESS

OVERVIEW

At its meeting in St. John's, Newfoundland in July 2016, the COMP board approved a three-year strategic and tactical plan. The plan was created by COMP to articulate its ambitions and guide its actions. It was prepared as part of the strategic planning process undertaken in 2015 – 2016 and addresses the period from 2016 – 2019. The board began this strategic planning process in December 2015. The Strategic Planning Task Force (Marco Carlone, Michelle Hilts, Luc Beaulieu, Atiyah Yahya, and Nancy Barrett) provided guidance and input throughout the process, particularly between board meetings. The process had the following three phases:

A THREE PHASED APPROACH	
Phase 1 – Kickoff and Research *December 2015 – February 2016*	Gathered and analyzed available information from COMP; conducted interview research with members, non-members, board, and staff.
Phase 2 – Strategy Development *February 2016*	The board reviewed the strategic assessment, & developed the strategies for COMP's success through a facilitated 1-day session.
Phase 3 – Tactical Planning *February – July 2016*	Staff & volunteers developed a concrete plan for the next three years, to make the strategy a reality.

The board made adjustments to COMP's vision and mission and set four strategic priorities that will be the focus of the next three years. The following table summarizes the four strategic priorities and their associated tactics. Metrics for each of the tactics have been established to help the board evaluate its progress.

Strategic Priority 1: Advocate for medical physicists as leaders in innovation and technology implementation in health care. As the health care system grapples with an aging population, changing technology, and financial constraints, medical physicists are uniquely positioned to ensure that technology is used effectively to improve patient outcomes. With this strategy, COMP will make the case for medical physicists' contribution to the efficient delivery of health care and will ensure that medical physicists themselves are able to clearly articulate their role in improving patient outcomes in their own clinical environment.

Tactic (how the strategy will be implemented):

a. Support members in advocacy within their own workplaces.

b. Improve understanding of role of medical physics through engagement between COMP and organizations of health care administrators and physicians.

c. Connect medical physicists to support provincial-level advocacy.

d. Develop COMP's ability to respond to regulatory issues that require a national voice for medical physics.

Strategic Priority 2: Ensure medical physicists in Canada can create and have access to relevant scientific and professional content. With rapid changes in technology and the context of health care, as well as developments in medical physics research, ways for medical physicists to articulate and share knowledge are increasingly needed. This strategy will build on COMP's successful meetings and other initiatives, such as CPQR, to expand both content and platforms for knowledge-sharing.

Tactic (how the strategy will be implemented):

a. Hold or collaborate in conferences.

b. Facilitate broader access to content through multiple channels/platforms.

c. Diversify content topics to provide value to a broader range of COMP members.

d. Lead and/or contribute to the development and dissemination of standards and guidelines, both for the practice of medical physics and usage of technology in health care.

Strategic Priority 3: Connect the entire Canadian medical physics community: to each other, to COMP, to other professionals, and to resources. COMP plays a key role in bringing medical physicists together and enables them to engage with others who are important to their work. This strategy will expand the groups that find value through COMP and strengthen the processes to deliver that value.

Tactic (how the strategy will be implemented):

a. Enable COMP members to connect to each other through networking opportunities.

b. Sustain a healthy membership.

c. Take a systematic approach to volunteer management.

d. Collaborate selectively with other organizations to build inter-professional networks.

Strategic Priority 4: Engage in strategically aligned international initiatives. COMP will lead efforts to connect Canadian medical physicists to international opportunities, ensuring that COMP as an organization is represented and that individual members are recognized.

Tactic (how the strategy will be implemented):

a. Align where appropriate with AAPM.

b. Assess and act on international project opportunities as they arise, based on benefit (generally and to COMP).

c. Showcase the international work of COMP and its members.

IMPLEMENTATION

A spreadsheet has been developed to analyze the tactics and activities supporting them, in terms of timing, sequencing, resourcing, responsibility, and dependency. This has helped the board determine feasibility of this plan and will enable ongoing monitoring and adjustment as implementation proceeds.

The strategic priorities will serve as the focus for the work of the Board over the next three years. At each in-person board meeting, the priorities will be posted so that they are visible and guide the decisions of the board. The plan will be reviewed at board meetings in terms of the accomplishment of the plan's activities against the metrics set. This review will also take into consideration any significant changes to the external environment which may warrant an adjustment of strategies or tactics.

The board has worked hard to develop this plan and is committed to its implementation. The plan is a living document, which can be adapted based on internal and external conditions to ensure COMP's ongoing success. If you have any questions about the strategic plan, please feel free to contact Nancy Barrett.

COMP'S FINANCES: A 5 YEAR VIEW

Crystal Angers (COMP Treasurer)
The Ottawa Hospital Cancer Centre, Ottawa, ON.

As the treasurer of COMP since 2012, I have had the pleasure of seeing our organization grow and prosper. I have also had the benefit of becoming familiar with all aspects of our organization; or at least those aspects making money or spending money! In this article I would like to present a five-year view of COMP's finances so that you too can gain an appreciation of our success and our growth.

Figures 1 and 2 summarize the revenue and expenditures for our routine operations. Actual data is presented for four years (2012 through 2015) and budgeted data is presented for 2016. From Figure 1 we see that COMP's revenue is derived from four main income sources: the Annual Scientific Meeting (ASM), the Winter School, membership dues, and advertising. From Figure 2 we observe that COMP's major expenses are related to the ASM and Winter School, the committee and executive board expenses, and the office and administrative support (AMCES). Committee and executive board expenses include all committee activities (newsletter, website, CE grants, awards, student council, etc.) and, as expected, represent a significant proportion of our spending.

Figure 1

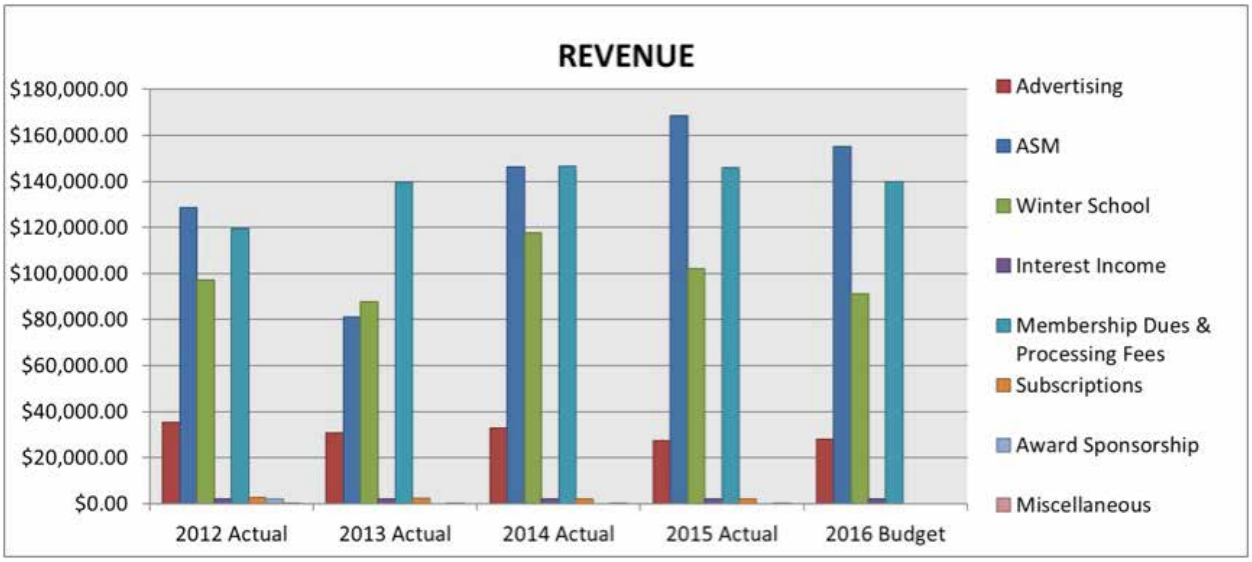
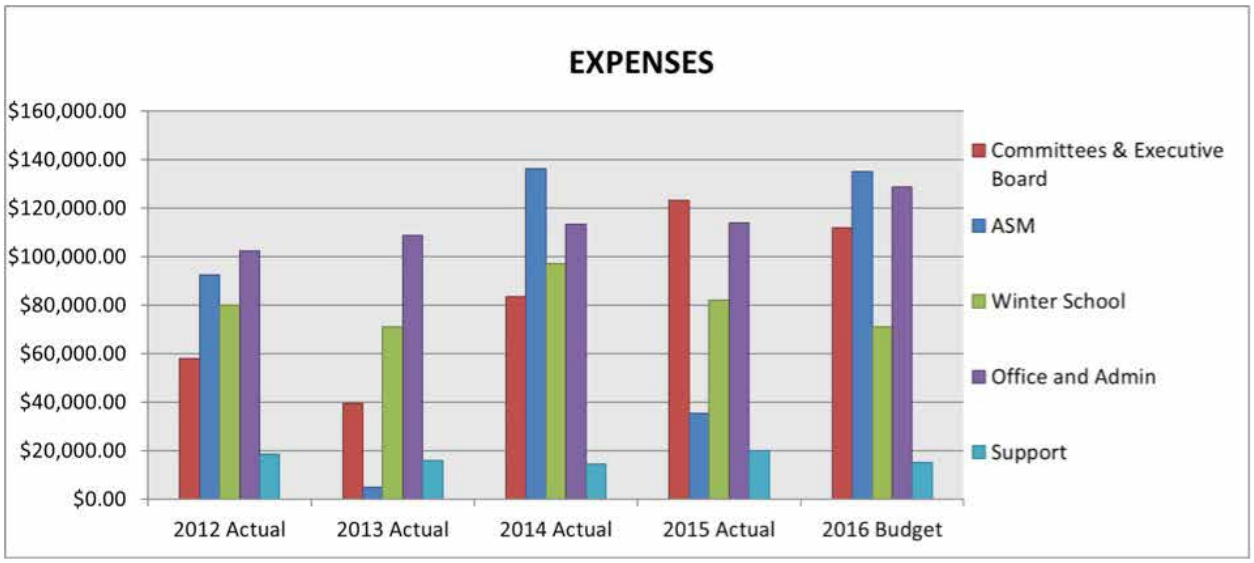


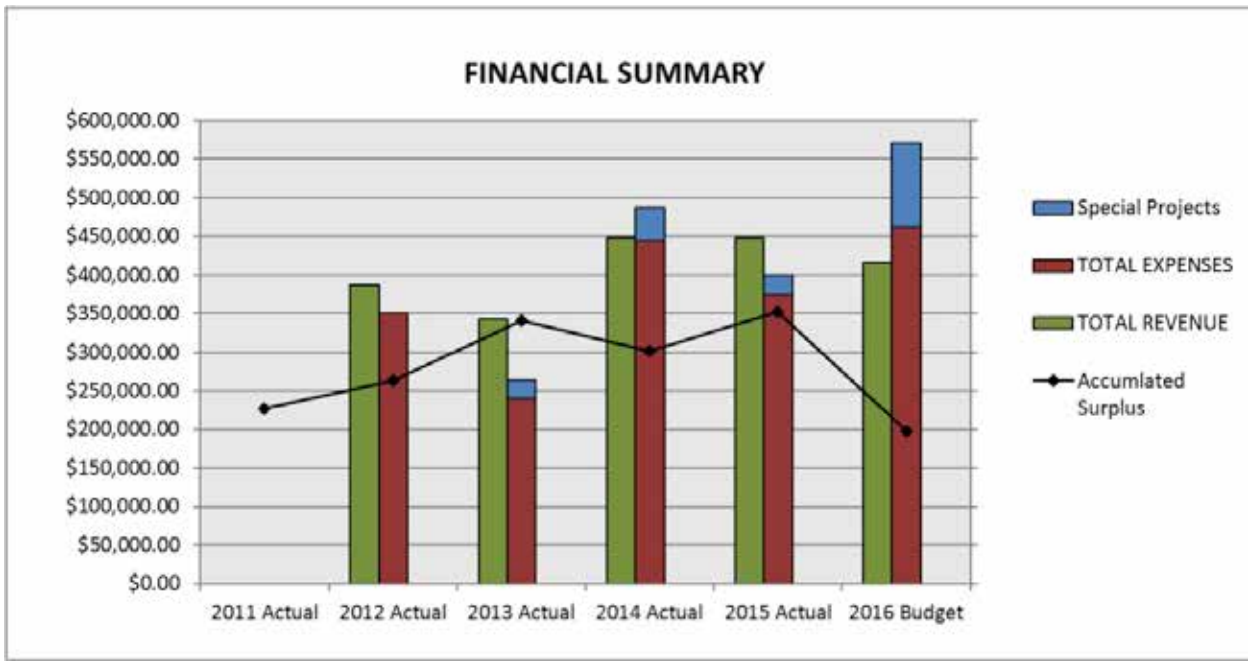
Figure 2



Project	Status	Start	Finish	Budget	Actual
Union for International Cancer Control, Global Task Force	closed	2013	2015	$10,000	$7,956
COMP non-profit regs Change	closed	2013	2013	$7,500	$8,845
CCPM non-profit regs Change	closed	2013	2013	$7,500	$6,857
Professional Affairs Committee initiative - gov't relations	closed	2013	2014	$7,500	$7,802
Policy updates for Not for Profit Act	closed	2014	2015	$13,000	$12,526
Cost of shuttle to the 2016 Winter School	closed	2015	2016	$7,000	$7,594
Website re-development	open	2013		$60,000	$46,958
Strategic planning 2016	open	2015		$35,000	$34,808
Mobile app for 2016 WS and ASM	open	2015		$10,000	$6,433
2016 ASM professional development session	open	2015		$10,000	$8,087
Publication trial	open	2015		$5,000	$2,000
AAPM leadership academy support, 5 participants at $1000 each	open	2016		$5,000	$5,000
Publication of technical quality control guidance documents	open	2016		$10,000	
Recording of continuing education sessions (WS and ASM)	open	2016		$7,500	$5,283
TOTAL				**$195,000**	**$160,149**

Figure 3 provides a summary of COMP's overall financial status for the past five years. Again actual data is presented for 2012 through 2015, and budgeted data is presented for 2016. Our accumulated unreserved surplus is also shown as a line plot. COMP strives to maintain a target surplus of $200,000, which is roughly estimated as half of the average operating expenses for the past five years. Since 2012, our accumulated surplus has grown to over $350,000, which has allowed us to initiate numerous special projects, as detailed in Table 1. We anticipate our surplus to return close to target in 2016 based on the budgeted expenditures and projected project completion dates. It is important to note that although an accumulated surplus enables special project financing, a not-for-profit organization such as ours should not be growing a surplus unnecessarily.

Figure 3



If you are interested in more details, I encourage you to review the financials presented in the COMP 2015 Annual Report, now available on the COMP website. Furthermore, if you have any questions about the data presented here or our financial situation please do not hesitate to contact me: crystal.angers@comp-ocpm.ca

THE WOMEN WHO HAVE INSPIRED A NEW GENERATION OF MEDICAL PHYSICISTS

Shirin Enger
Medical Physics Unit, McGill University, Montreal, QA
and
Malcolm McEwen
Department of Physics, Carleton University, Ottawa, ON

WRITING FOR THE COMP WOMEN'S COMMITTEE

Women such as Marie Skłodowska-Curie, Irène Joliot-Curie, Harriet Brooks, Rosalind Franklin, and closer to us, Sylvia Fedoruk, have played an important role in discoveries and development of medical physics. Another field that women have made great contributions to is education. We are surrounded by female educators and mentors from early childhood to adulthood.

They help to form our identity and make lasting imprints in our lives. October was Women's History Month in Canada with the theme "Because of Her," in order to celebrate the women that have inspired and influenced us to be who we are today. The COMP Women's Committee appealed to the membership in October to take this opportunity and share stories on Twitter and Facebook with **#MedPhysBecauseOfHer** of how extraordinary women have influenced their life, career, or perspective:

@WarrenG1983, a Canadian medical physicist dedicates his thesis to his third grade teacher Mrs. York "for forcefully instilling me a desire to aim for great".

@thoriscoolth writes, "In elementary I assumed I wasn't smart. Mrs P saw something in me and challenged me. It turns out I was smart!".

@Psbasran tweets "My GR2 teacher taught me not to be ashamed of my long, awkward name and stop worrying about fitting in".

@michelle_hilts comes with her testimony "Ages ago Brenda Clark noticed me belittling good work I'd done. She said 'NEVER do that again!' & I still hear her. Tx!".

@noctavedc writes "Many women inspired me to go far and beyond. I'll start with my primary school director."

@ShirinAEnger tweets, "My grandmother. She was strong, brave, different, dared to go her own way and inspired me to chase my dreams."

The teachers, mentors, and role models from the stories above have had a profound impact on their pupils' lives by encouraging them, believing in them and lifting them up to see beyond the present to a future of wider possibilities. They have inspired their students to believe in themselves and to strive for greatness, not settle for good enough.

As educators, role models, and mentors we form a new generation of medical physicists. It is important to learn from the stories above; sometimes it is enough with one sentence to make a difference in a future colleague's life and career even on a day-to-day basis.

The COMP Women's Committee strives to make a positive difference by aiming to address issues women face in medical physics in Canada.

THE MEDPHYS MATCH PROGRAM: A CANADIAN APPLICANT'S PERSPECTIVE

COMP Student Council

Previous COMP student council events have seen a high demand for information about obtaining a residency position after completing graduate studies. The Medical Physics Matching Program, commonly known as the "MedPhys Match," was instituted in 2014 in order to help both applicants and programs by standardizing the application process. Thus far, two Canadian institutions are participating.

After the evaluation period, the applicant must submit a rank order list in which they list their preferences, and, similarly, the program must submit a list containing their preferences in terms of applicants. Then, a matching algorithm is used to pair applicants and programs based on their preferences. More information about the matching algorithm can be found on the MedPhys Match website (www.natmatch.com/medphys).

This past year, 331 students registered for the match and 209 of them participated in the match program (i.e. - 122 withdrew or did not submit a ranked list). From the applicants that participated, 106 (51%) of them matched successfully and 103 did not (49%). From the program perspective, 77 residency programs participated in this past year's match and offered a total of 111 positions.

Inevitably, there will be many Canadian applicants to the MedPhys Match in the future. In order to gain a Canadian applicant's perspective, four recent match applicants were asked a series of questions. In the section that follows, each participant's answer to eight questions will be presented. Participants 1 and 2 are PhD graduates that successfully matriculated into a residency position through the match program; participants 3 and 4 participated in the match program, but were unsuccessful. The COMP Student Council would like to sincerely thank all participants for their time.

1. What is your field within medical physics and how did you hear about the match program?

- **P1:** Radiation therapy. I learned about the match program when I started the application process.
- **P2:** Ultrasound. I learned about the match through a colleague.
- **P3:** Radiation therapy, X-ray imaging, and nanotechnology. I learned about it through former work colleagues.
- **P4:** Therapy (radiation oncology physics). I learned about the match program at an AAPM conference.

2. How would you describe your experience with the application process?

- **P1:** The process was fairly straight forward. I applied to two institutions, and both required similar documents, so it wasn't too much to juggle. There were, however, some subtle differences in the specific details required, so it was important to be organized. I also found it was important to learn as much as I could about the clinical, research, and teaching activities at each institution so I could both personalize my application and be more informed during the match process. I think the match program allows both the institutions and candidates to compare their options more objectively than other application processes. However, this almost means there is less flexibility for both the applications and institutions.
- **P2:** Submitting the application to several centers was very simple and cheaper, since it was a centralized system. I didn't need to ask my references for several reference letters. They only submit their reference letters once. Finding the centers that have openings was a lot easier than emailing and asking them individually.

- **P3:** The online application process was very easy and straightforward. I never had any problems corresponding with the right contact person if I had questions, or if they required more information and documentation from me. The match program also gave me an idea of how education and experience requirements varied across the board. The timing of the match program results with June start dates was inconvenient. The most difficult part of applying was waiting for the results. The institutions that interviewed me could not disclose my rank. I tried asking if I am at least in their top three to help me decide on my ranking and - of course - they could not even tell me.
- **P4:** It was straightforward and not too difficult. It used the MP-RAP system, and so one application could be used for many different programs you wanted to apply. A downside to this I felt it was difficult to "fine tune" your application for different places, as you had to have a very "global" type cover letter for example.

3. Do you expect more opportunities for Canadian applicants this year (2016)?

- **P1:** I wouldn't be surprised if more Canadian institutions participated in the match program in the future.
- **P2:** Yes, if Canadian cancer centers start participating in the Med Phys Match system.
- **P3:** If there are no changes in the application system, I certainly think that the match program makes American institutions realize how many qualified Canadians there are. American residents will always be preferred by American institutions since a work permit would not be required, and there will likely be less complications involved with moving. However, it is important to demonstrate how many Canadian candidates they are missing out on simply because of wanting to minimize paperwork. Canadians may not have significantly more opportunities this year, but I do believe that over time, the more Canadian talent they pass on, it may as well be the case.
- **P4:** If a Canadian applicant wanted to go to the US for their residency they most likely will have go through the match program. However, if you wanted to stay in Canada, likely only the TBCC (Tom Baker Cancer Center) in Calgary and the BCCA (British Columbia Cancer Agency) will be part of the match.

4. Do you think the match program has made the application process more or less competitive?

- **P1:** I suspect that the participating institutions have more applicants than those that do not participate, because more international applicants would become aware of Canadian institutions through the match program (since all participating institutions are listed on the match program site).
- **P2:** I think it made it less competitive.
- **P3:** The match program has definitely made the application process competitive. I applied to almost twenty cancer centres, since candidates have nothing to lose when applying to multiple institutions - definitely the case for me last year. At the same time, it was easier to learn about cancer centres that may not have been of interest or unknown to the applicant.
- **P4:** I think it has made it more competitive actually. It was easy to apply to many different programs with one single application and so many more people likely applied to each program than without the match.

5. Did applying for the Match Program limit your options in terms of applying to programs out of the match system (e.g. due to different program application deadlines)?

- **P1:** In my particular situation this was not an issue. During the time between the initial application and the match date I was not aware of any other Canadian institution with an available residency position. However, it is easy to imagine that the rigid schedule and rules of the Match Program could make applying to both participating and nonparticipating institutions at the same time complicated.
- **P2:** Yes, because Canadian application deadlines were different than the American ones.
- **P3:** Yes it did. I had to wait until the results were out before I applied to Canadian institutions - most of which did not participate in the program.
- **P4:** Not really. Most Canadian residency programs had their applications deadlines after the match process had been finalized. However, it would have been a challenge if a program deadline was sooner, as you would need to hear back from the residency program BEFORE the deadline to withdraw from the match program as to avoid a conflict of interest.

6. Do you have any suggestions on how to make the application process better?

- **P1:** I think the greatest challenge in making a match program for medical physics residencies as successful as the analogous medical school program, is that medical physics graduate students are completing their degrees, and thus are ready to start residencies, at various times throughout the year. This means a once-a-year application deadline can be quite limiting to those looking for residencies. I think the greatest improvement to the application process, particularly if the match program becomes more popular among Canadian institutions, is somehow address the timing issue. Perhaps an alternative is to have a multiple application competitions throughout a year, and the institutions can choose when they'd like to be involved.
- **P2:** There were sometimes conflicts on the days of interviews.
- **P3:** Canadian institutions joining the match program would be great. In this way, applicants wouldn't have to wait for match results from applying to dominantly American institutions before applying to Canadian ones.
- **P4:** Ideally more programs in Canada would be part of the match, but I don't anticipate that happening. It is quite competitive to get into a residency program, so programs have no difficulty filling their residency spots and so don't see the need to change their approach ("if it is not broken why fix it" type of thinking). It might be good to add a small application fee for each program applied to in order to limit applicants applying to all programs.

7. How do you think the match program will affect radiation therapy students compared to imaging students?

- **P1:** I do not know. I know very little about imaging residencies.
- P2: I don't see any conflicts between the two.
- **P3:** If I remember correctly, the match program indicates what type of residency it will be - whether it's radiation therapy or imaging. I did not let that affect my choices since I was open to both streams. I did not really pay attention which stream had more openings. I do not think it really matters whether or not the candidate specializes in radiation therapy or imaging - I think it depends more on the institution and what type of physicist they are currently looking for. For example, if they plan on imaging with MRI in the future, they may look for an MRI specialist in hopes of benefiting from their expertise. On the other hand, if they plan on installing a brachytherapy suite, they may hire a brachytherapy specialist.
- P4: I am not sure. I don't know much about the number of imaging students and how competitive it is to find programs.

The overall consensus from the applicants was that the MedPhys Match program simplified the application process. One participant made a general comment saying that with the currently limited number of Canadian institutions participating, there was no real advantage for Canadian applicants. For applicants looking to go to the US for the residency training, the match program is essential given that 74 institutions are participating. Given the current competitiveness of Canadian residency applications, it seems worthwhile to also apply through the MedPhys Match program.

FUNDING OPPORTUNITY FOR COMP MEMBERS: INNOVATION IN RADIATION SAFETY

COMP is pleased to announce an exciting funding opportunity that has been made available to COMP members by the CNSC. The aim is to support the development of innovative tools that address radiation safety and security issues. Examples include, but are not limited to:

- The development of software to facilitate quality control of safety systems.
- Tools that enable consistent and comprehensive equipment service logging.
- Systems that facilitate sharing of quality control and equipment servicing data.

In keeping with the CSNC's policies, any content developed will be made free and widely available for all COMP members and the broader Canadian medical physics community.

Support will be awarded to a maximum of $30,000 issued in two instalments (March 1st, 2017 and July 1st, 2017). To apply for this funding, please visit the Community and Partnerships section of www.comp-ocpm.ca for the form to be completed.

To apply for this funding, please visit the Community and Partnerships section of www.comp-ocpm.ca for the form to be completed. The deadline to submit for the 2017 funding is Wednesday, **February 15th, 2017**!

JOIN THE COMP STUDENT COUNCIL TODAY!

The COMP Student Council is now recruiting bright and enthusiastic new members. We meet bi-monthly via teleconference to discuss issues and programs important to the student membership of COMP. The time commitment for an SC member is ~1 hour per month. This may moderately increase (1-5 hours) with additional voluntary projects, especially approaching the COMP Annual Scientific Meeting. Join before **February 1st, 2017** to be an eligible candidate for vice-chair at the 2017 COMP ASM in Ottawa. Please contact Hali Morrison (current chair) at hamorris@ualberta.ca for more information.

GOLD MEDAL AWARD: CALL FOR NOMINATIONS

The COMP Gold Medal will be awarded to a member of COMP (or retired former member) who has made a n outstanding contribution to the field of medical physics in Canada. An outstanding contribution is defined as one or more of the following:

1. A body of work which has added to the knowledge base of medical physics in such a way as to fundamentally alter the practice of medical physics.
2. Leadership positions in medical physics organizations which have led to improvements in the status and public image of medical physicists in Canada.
3. Significant influence on the professional development of the careers of medical physicists in Canada through educational activities or mentorship

The Gold Medal is the highest award given by the Canadian Organization of Medical Physicists and will be given to currently active or retired individuals to recognize an outstanding career as a medical physicist who has worked mainly in Canada. It will be awarded as appropriate candidates are selected, but it will not generally be given more than once per year.

Nominations for the 2016 medal are hereby solicited. Nominations are due by **April 30th**, and must be made by a Full Member of COMP. Nominations must include:

1. The nominator's letter summarizing the contributions of the candidate in one or more of the areas listed above.
2. The candidate's CV.
3. The candidate's publication list (excluding abstracts) which highlights the candidate's most significant 10 papers.
4. Additional one to two page letters supporting the nomination from three or more members of COMP.

Please forward nominations electronically to Nancy Barrett at the COMP office (preferably in pdf format, nancy.barrett@comp-ocpm.ca).

Candidates selected for the medal will be invited to attend the COMP Annual Scientific Meeting where the award will be presented by the COMP President. Travel expenses will be paid for the medal winner. The medal winner may be asked to give a 30 minute scientific presentation at the COMP meeting in addition to a short acceptance speech when the medal is presented.

A NEW WORKSHOP BRIDGING MEDICAL PHYSICS AND STATISTICS

COMP, in collaboration with the Canadian Statistical Sciences Institute (CANSII), are co-hosting a workshop aimed at **bringing together medical physics and statistics researchers** to help solve some of the major challenges of health care today.

Medical Physics and Statistics: Exploring Interfaces and Building Collaborations, will be held over 2 days on **April 4th and 5th 2017** at the **Fields Institute at the University of Toronto**.

Medical physics and statistics interface in many ways, and this workshop will be a forum to establish discipline-wide communications and scope for collaborations. The program will feature invited talks in imaging and radiation oncology medical physics (current trends, data analytics, machine learning, etc.) and in statistics (dose response, modelling, quality, reliability, etc.). The talks will be interspersed with break out discussion sessions. There will also be the opportunity to submit posters for discussion.

We anticipate this being a highly engaging, dynamic, and productive workshop with excellent talks and plenty of time for discussion and building collaborations. Students and post-docs welcome. The hope is that this initial workshop will be a springboard for new collaborations and for a longer joint meeting in the near future.

Registration will be available through the Fields Institute early in the new year. Please consider joining in the discussion and... save the date!

ANNOUNCEMENT FOR NEW INTERACTIONS FEATURE: NOTEWORTHY

If you have anything noteworthy to share with the medical physics community, please submit a short note on it to the editor for inclusion in InterACTIONs. Examples of items for submission:
– Promotion of COMP and Canadian medical physics.
– Retirement of medical physicists.
– New patents.
– New licensing agreements.
– Large grants.
– CAMPEP-accreditation/reaccreditation.
Please include a small photo if you wish.

NOTEWORTHY ITEMS

Congratulations to the medical physics team at the University of British Columbia, Okanagan Campus on the CAMPEP accreditation of their MSc and PhD programs in medical physics!

http://medicalphysics.ok.ubc.ca/welcome.html

FELLOW OF COMP AWARD

NOMINATION PROCESS

Nominations are being accepted for the Fellow of COMP Award. This honour recognizes an active member who has made a significant contribution to the field of medical physics and to COMP. This contribution is to be in two or more of the following:

- Service to COMP.
- A demonstrated body of work showing an outstanding contribution to research and development in the medical physics profession.
- A demonstrated body of work showing an outstanding contribution to professional practice.
- Through educational activities or mentorship, particularly regarding the education and training of medical physicists, medical residents, and allied health personnel.

Other Criteria that Must be Met:

- Nominees must have a minimum of 10 years of experience in the field of medical physics.
- Nominees must have a minimum of 5 consecutive years as a member of COMP and be a full member in good standing at the time of the nomination.

Nomination Process:

- Any member in good standing may nominate an individual for the FCOMP Award.
- At least two support letters are required in addition to a cover letter from the nominator. If the nominator does not hold an FCOMP, then the nominator is required to solicit two letters of support from members who hold an FCOMP. If the nominator holds an FCOMP, then one additional FCOMP holder must second the nomination and provide a letter of recommendation, and a second letter of support may come from any reference (does not need to be a member of COMP).
- In addition to the cover letter and the letters of support, the nominator must also complete the FCOMP Nomination form in order to provide a summary of the nominee's service to COMP, contributions to research and development, contributions to professional practice and contributions to education and mentorship.
- An informal curriculum vitae of the nominee is also required. The CV should include educational history, work experience, key publications & presentations, awards & honours, and patents
- If a nominee is slated to receive the FCOMP Award, both the nominator and the nominee will be notified by COMP. The nominee will be asked to confirm his/her willingness to accept the Award and will be asked to provide a short bio and a recent photograph.
- Nominations may be submitted at any time and those received by **April 30th, 2017** will be considered for presentation at the 2016 AGM in St. John's Newfoundland.

CALL FOR BOARD NOMINATIONS

The COMP Awards and Nominations Committee is responsible for presenting a slate of nominations for the COMP Board of Directors to ensure that the organization is governed with excellence and vision. There will be two openings on the Board of Directors as of the 2016 Annual General Meeting.

TREASURER

The treasurer serves a three year term on the board that will commence in January 2018 and end December 2020. To ensure a smooth transition in responsibilities between the current treasurer and the treasurer-elect, the terms of the current treasurer and the treasurer-elect will overlap from the 2017 AGM until the end of December 2018.

The treasurer has the following responsibilities:

1. In collaboration with the board and committee members, develop a budget for presentation to the board for approval.
2. Inform the board of the financial status at board meetings.
3. Inform the membership of financial results and present the auditor's report at the AGM.
4. Assist in the development of financial policies and procedures in collaboration with the board.
5. Oversee and monitor all financial transactions in collaboration with the management service.
6. To prepare for, attend, and actively participate in all board meetings and relevant committee meetings. In-person meetings take place in November and at the Annual Scientific Meeting, and there may be up to four teleconferences.
7. Oversee projects and assume other responsibilities as required.

DIRECTOR-AT-LARGE (2)

There will be two openings for a director-at-large. Directors-at-large serve for a term of three years and have the following responsibilities:

1. To work in conjunction with other board members in the best interest of the organization.
2. To prepare for, attend, and actively participate in all board meetings and relevant committee meetings. In-person meetings take place in November and at the Annual Scientific Meeting, and there may be up to four teleconferences.
3. To be prepared and willing to chair a committee or lead special projects as required.

On the last point, at present chairs are being sought for the Quality Assurance and Radiation Safety Advisory Committee (QARSAC) and the Imaging Committee.

Nominations for these roles are due by **April 28th, 2017** and **must be accompanied** by a duly signed Expression of Interest and Nomination Form endorsed by no fewer than two (2) voting members of COMP as well as a brief bio. To access the nomination form, please visit www.comp-ocpm.ca or contact the COMP office.

THE ROUND-UP: 4TH ANNUAL INTERNATIONAL DAY OF MEDICAL PHYSICS

November 7th, 2016 was a big day in the world of Medical Physics - Marie Curie's birthday and the 4th International Day of Medical Physics (IDMP)! COMP Members across the globe celebrated through educational and appreciation events, with lots of cake...

Thank you to everyone who submitted a **#MedPhysDay** posting to celebrate IDMP 2016, bringing awareness to the importance of Medical Physicists working collaboratively in the research and clinical environment to provide leadership and innovation in patient care.

THANK YOU FOR THE IMPORTANT WORK YOU DO!

DATES TO REMEMBER

February 1st – 5th, 2017: Mammography Workshop and Winter School on Quality Improvement and Radiation Safety

February 1st, 2017: 2017 Syliva Fedoruk Prize in Medical Physics

February 15th, 2017: Innovation in Radiation Safety Award deadline

April 4th – 5th, 2017: Medical Physics and Statistics Workshop

April 28th, 2017: COMP board nominations

April 30th, 2017: Fellowship of COMP Award nomination

April 30th, 2017: Gold Medal nominations

March 1st, 2017: April issue of InterACTIONs submission deadline

July 12th – 15th, 2017 COMP Annual Scientific Meeting

MICHAEL S. PATTERSON PUBLICATION PRIZE

CALL FOR NOMINATIONS

Scientific papers written by COMP members have had a tremendous impact on the field of medical physics. To recognize the authors of such influential papers, the board decided to establish a new award: the Publication Impact Prize.

Criteria:

- Peer-reviewed papers published in any scientific journal in the last ten years will be considered; for example, papers published in 2006 – 2015 were eligible for the inaugural 2016 prize.
- At least one author must have been a COMP member at the time of publication, and the work must have been performed mainly at a Canadian institution. Review papers, task force reports, opinion pieces, and standards documents are not eligible, and publications must represent a significant advance in medical physics.
- Decisions about eligibility will be made by the Publication Impact Prize Subcommittee.
- A paper can win the prize only once even if it continues to be the citation leader.

The winner is the eligible paper that has received the most citations in the Web of Science, maintained by the Institute for Scientific Information (ISI), including citations from all data bases. The winner will be announced at the 2017 AGM in Ottawa, ON.

2017 SYLVIA FEDORUK PRIZE IN MEDICAL PHYSICS

The Saskatchewan Cancer Agency is pleased to sponsor a competition for the 2017 Sylvia Fedoruk Prize in Medical Physics. This award is offered annually to honour the distinguished career of Sylvia Fedoruk, former Lieutenant-Governor of Saskatchewan and previously physicist at the Saskatoon Cancer Centre.

The prize will comprise a cash award of five hundred dollars ($500), an engraved plaque, and travel expenses to enable the winner to attend the annual meeting of the Canadian Organization of Medical Physicists (COMP), which will be held from July 12th to 15th, 2017, in Ottawa, Ontario.

The 2017 Prize will be awarded for the best paper (i) on a subject falling within the field of medical physics,(ii) relating to work carried out wholly or mainly within a Canadian institution, and (iii) published during the 2016 calendar year. The selection of the award-winning paper will be made by a panel of judges appointed by COMP.

Papers published in Physics in Medicine and Biology and Medical Physics, which conform to the conditions of the preceding paragraph, will automatically be entered in the competition and no further action by the author(s) is required. All other papers should be submitted electronically to:

Nancy Barrett, Executive Director
E-mail: nancy.barrett@comp-ocpm.ca.

Each paper must be clearly marked "Entry for 2017 Sylvia Fedoruk Prize" and must reach the above address no later than **Wednesday February 1st, 2017**.

The award winners from the last five years were:

Matthews Q, Isabelle M, Harder SJ, Smazynski, J, Beckham W, Brolo AG, Jirasek, A, and Lum JJ, Radiation-Induced Glycogen Accumulation Detected by Single Cell Raman Spectroscopy Is Associated with Radioresistance that Can Be Reversed by Metformin" (PLoS ONE 10(8): e0135356. doi:10.1371/ journal.pone.0135356).

Goulet M, Rilling M, Gingras L, Beddar s, Beaulieu L, and Archambault L, Novel, full 3D scintillation dosimetry using a staticplenoptic camera, *Medical Physics, 41, Vol. 8, August 2014*; 082101.

Renaud J, Marchington D, Seuntjens J, and Sarfehnia A, Development of a graphite probe calorimeter for absolute clinical dosimetry, *Medical Physics, 40, Vol. 2, February 2013*; 020701.

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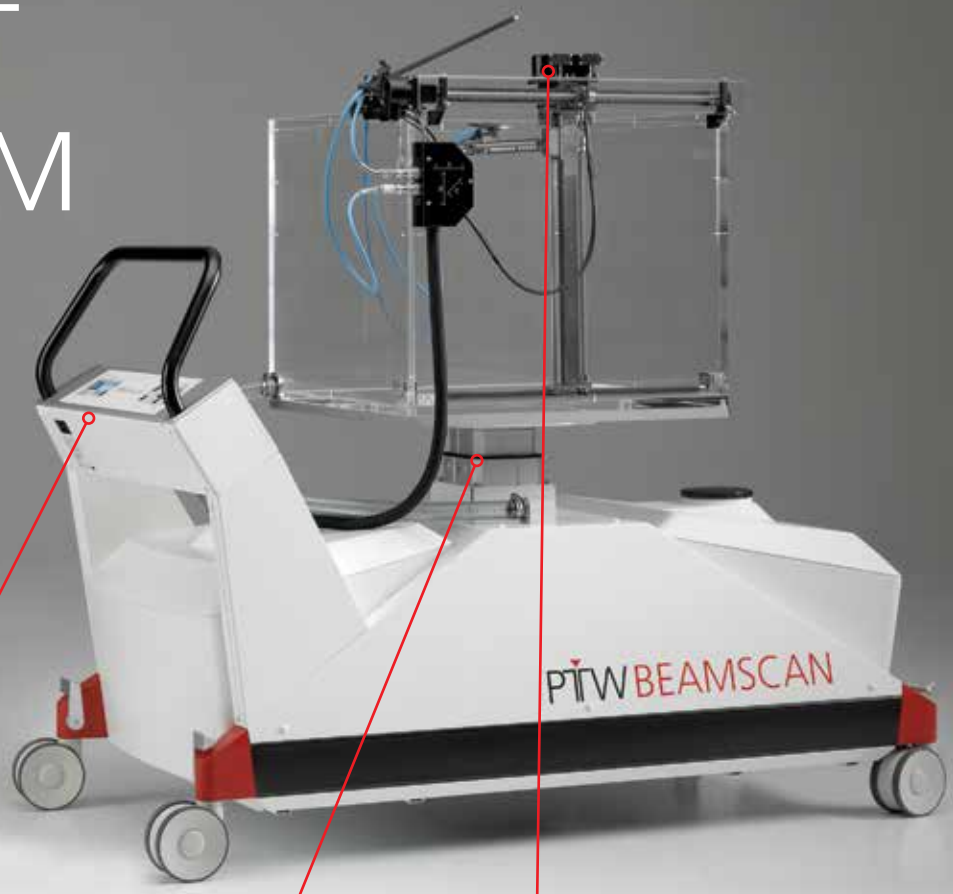

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