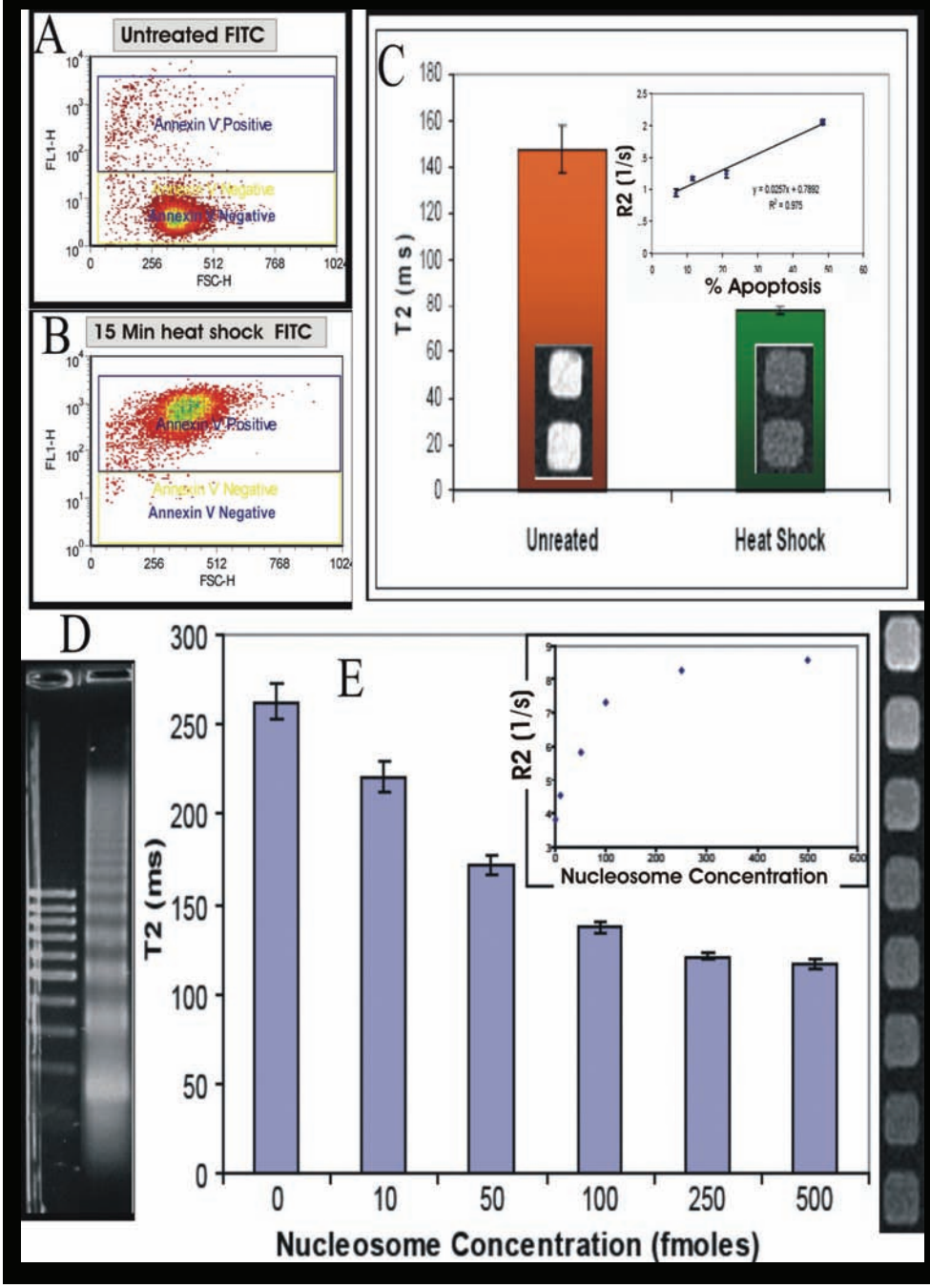
InterACTIONS

CANADIAN MEDICAL PHYSICS NEWSLETTER
Le BULLETIN CANADIEN de PHYSIQUE MÉDICALE

Measuring cellular apoptosis using molecular MRI



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CANADA

A publication of the Canadian Organization of Medical Physicists and the Canadian College of Physicists in Medicine

http://www.medphys.ca

ISSN 1488-6839

CANADIAN COLLEGE OF PHYSICISTS IN MEDICINE
LE COLLÈGE CANADIEN DES PHYSICIENS EN MÉDECINE

54 (1) janvier/January 2008

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LE COLLEGE CANADIEN DES PHYSICIENS EN MÉDECINE

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Volume 54, Number 1– janvier/January 2008

Cover Image

Last summer, the Medical Physics Program along with the Molecular Biology Laboratory at the Thunder Bay Regional Health Sciences Center initiated a study investigating the feasibility of the measurement of cellular apoptosis using molecular magnetic resonance imaging (MMRI). In general, molecular imaging involves the delivery of an image contrast enhancing agent to a specific cell bio-chemical marker or property. This is achieved by conjugating the contrast agent to a ligand possessing a high affinity for the specific biomarker of interest. Apoptosis, or programmed cell death, is characterized by two temporally displaced events leading to well established benchtop biomarkers. Firstly, in the early stages, the phosolipid phosphatidylserine (PS) is transported from the inner surface to the outer surface of the cell membrane. This externalized PS can be tagged with high specificity using annexin V as a ligand. Later in apoptosis, the nuclear DNA begins to fragment giving rise to various nucleosomes and the exposure of some very specific proteins known as histones. An antibody against these histones makes for an excellent ligand for tagging nuclear fragmentation in late apoptosis. In these experiments, a superparamagnetic iron-oxide particle (SPIO) was used as the MRI contrast agent conjugated to either annexin V or histone antibodies as the ligand. SPIO particles are known to increase the transverse relaxivity, $R_2 = 1/T_2$, in proportion to their concentration, resulting in a reduction of image intensity on a T_2 weighted image or T_2 map. Figures A and B are characteristic benchmark annexin V FITC results for normal and heat shock induced apoptotic cells, respectively. The annexin V MMRI shown in Figure C demonstrates the expected enhancement on T_2 for these cell populations. By varying the proportion of apoptotic to normal cells, the relationship between R_2 and percent apoptosis was determined to be linear (insert figure C). Preliminary experiments on nuclear fragmentation indicate similar results, with figure D demonstrating the benchtop gel electrophoresis used for characterization of the nucleosome yield. The MMRI T_2 response to nucleosome concentration is shown in figure E with a typical image on the right.

Image provided by Patrick Rapley, Thunder Bay Regional Health Sciences

COMP EXECUTIVE

Chair:
Stephen Pistorius, Ph.D.
CancerCare Manitoba
675 McDermot Avenue
Winnipeg, MB, R3E 0V9
Tel: (204) 787-4134
Fax: (204) 775-1684
stephen.pistorius@cancercare.mb.ca

Past Chair:
Peter O'Brien, M.Sc., FCCPM
Toronto-Sunnybrook Regional
Cancer Centre
2075 Bayview Avenue
Toronto, ON, M4N 3M5
Tel: (416) 480-4622
Fax: (416) 480-6801
peter.o'brien@sunnybrook.ca

Chair Elect:
Jason Schella, M.Sc., FCCPM
Nova Scotia Cancer Centre
5820 University Avenue
Halifax, NS B3H 1V7
Tel: (902) 473-6011
Fax: (902) 473-6120
Jason.schella@cdha.nshealth.ca

Secretary:
Patrick Rapley Ph.D., FCCPM
Medical Physics Program,
Thunder Bay Regional Health Sciences
980 Oliver Road
Thunder Bay, ON P7B 6V4
Tel: (807) 684-7327
Fax: (807) 684-5801
rapleyp@tbh.net

Treasurer:
Maryse Mondat, M.Sc., FCCPM
Hôpital Maisonneuve-Rosemon
5415 boulevard de l'Assomption
Montréal, PQ, H1T 2M4
Tel: (514) 252-3425
Fax: (514) 252-3558
Mmondat.hmr@ssss.gouv.qc.ca

Councillor for Communications:
Michelle Cottreau, M.Sc.
Queen Elizabeth Hospital
60 Riverside Dr. Box 6600
Charlottetown, PE, C1A 8T5
Tel: (902) 894-0203
Fax: (902) 894-2276
mjcottreau@ihis.org

Councillor for Professional Affairs:
Joseph E. Hayward, Ph.D., MCCPM
Dept. of Medical Physics,
Juravinski Cancer Centre,
699 Concession Street
Hamilton ON L8V-5C2
Tel: (905) 387-9711 Ext: 67040
Fax: (905) 575-6330
Joe.Hayward@hrcc.on.ca

CCPM BOARD

President:
Dick Drost, Ph.D., FCCPM
Nuclear Medicine Department
St. Joeseph's Health Care London
268 Grosvenor Street
London, ON. N6A 4V2
Tel: (519) 646-6100 x64141
FAX: (519) 646-6135
drost@lri.sjhc.london.on.ca

Vice-President:
David Wilkins, Ph.D., FCCPM
The Ottawa Hospital
Box 927, 501 Smyth Road
Ottawa, ON. K1H 8L6
Tel: (613) 737-7700 x70010
FAX: (613) 247-3507
dawilkins@ottawahospital.on.ca

Registrar:
Wayne Beckham, Ph.D., FCCPM
Vancouver Island Cancer Centre
2410 Lee Street
Victoria, BC, V8R 6V5
Tel. (250) 370-8225
FAX: (250) 370-8697
wbeckham@bccancer.bc.ca

Chief Examiner:
Michael Evans, M.Sc., FCCPM
McGill University Health Centre
1650 avenue Cedar
Montréal, QC, H3G 1A4
Tel. (514) 934-8052
FAX: (514) 934-8229
mevans@medphys.mcgill.ca

Deputy Chief Examiner:
Robert Corns, Ph.D., FCCPM
BC Cancer Agency, Fraser Valley Centre
Medical Physics
13750-96 Avenue
Surrey, BC V3V 1Z2
Tel: (604) 930-4055 x4558
Fax: 604-930-4042
rcorns@bccancer.bc.ca

Secretary-Treasurer:
Sherry Conners., M.Sc., FCCPM
Dept. Medical Physics
Cross Cancer Institute
11560 University Ave
Edmonton, AB T6G 1Z2
Tel: (780) 432-8775
Fax: (780)-432-8615
sconnors@ualberta.ca

General Board Members:
John Rowlands, Ph.D., FCCPM
Narinder Sidhu, Ph.D., FCCPM

COMP/CCPM Office

COMP Secretariat
COMP/CCPM Office
P.O. Box 72024
Kanata North RPO
Ottawa, ON, K2K 2P4
Canada
Telephone:(613) 599-1948
Facsimile: (613) 599-1949
E-mail: admin@medphys.ca
Website: www.medphys.ca

The Canadian Medical Physics Newsletter, which is a publication of the Canadian Organization of Medical Physicists (COMP) and the Canadian College of Physicists in Medicine (CCPM) is published four times per year on 1 Jan., 1 April, 1 July, and 1 Oct. The deadline for submissions is one month before the publication date. Enquiries, story ideas, images, and article submissions can be made to:

Parminder S. Basran, Ph.D., MCCPM
Sunnybrook Health Sciences Centre
2075 Bayview Avenue, TG-217
Toronto, ON, M4N 3M5
Email: parminder.basran@sunnybrook.ca
Phone: (416) 480-5100 Ext: 1087
Fax: (416) 480-6801

Members of the Editorial Board include:

Boyd McCurdy:
boyd.mccurdy@cancercare.mb.ca

Michelle Cottreau: mjcottreau@ihis.org

Please submit stories in Publisher 98, Word 6.0, Word 97, or ASCII text format. Hardcopy submissions will be scanned to generate an electronic document for inclusion in the Newsletter. Images in Tiff format at 300 dpi resolution are preferred.

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Nancy Barrett
Executive Director COMP/CCPM
P.O. Box 72024, Kanata North RPO
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Email: execdir@medphys.ca
Phone: (613) 599-1948
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Message from the CCPM President:

First, I would like to thank Katharina Sixel for her work on the CCPM board as chief examiner. Katharina served from 1999 to this year. I would like to welcome our new board member, Sherry Connors, who is our new Secretary/ Treasurer.

Twenty-three new members and nine new fellows have been certified by the CCPM this year bringing the total membership to 259.

I would like to congratulate this year's winner of the Harold E. Johns travel award, Rao Khan from the Tom Baker Cancer Institute in Calgary. Rao will be attending an ESTRO course on the physical and technical aspects of imaging applied to radiation therapy. When you send in your registration fee this year please remember to donate a few coffees ($10) to the HEJ fund so that we can continue these travel awards and thereby continue to honour one of the founders of medical physics.

The American Board of Radiology (ABR) has decided that beginning in 2012 only applicants that have gone through a CAMPEP accredited graduate OR residency training program will be allowed to sit the ABR certification exams and by 2014 ONLY applicants that have gone through a CAMPEP accredited residency program will be allowed to sit the ABR certification exams. [see www.theabr.org/Policy_Pri_CAMPEP.htm] There is a pragmatic reason for the requirement change between 2012 and 2014: currently there are more CAMPEP accredited graduate training programs than CAMPEP accredited residency training programs in the US. In Canada, we have the opposite situation: more CAMPEP accredited residency programs than graduate programs. As discussed at both the CCPM and COMP annual general meetings, the CCPM board is considering CAMPEP accredited residency training as one of the requirements to apply for CCPM certification. The first reason for this new requirement is to improve the quality of patient care delivered by medical physics in Canada. There is already evidence in both countries that applicants that have gone through a CAMPEP residency program fail less often and perform better on their board certification exams [Medical Physics 2005 32(4) pg 835-837]. A second reason is to keep recognition of CCPM certification as equivalent to ABR in the US. The equivalency recognition is by the NRC and the individual states in the US that require board certification, not the ABR itself.

...currently there are more CAMPEP accredited graduate training programs than CAMPEP accredited residency training programs in the US. In Canada, we have the opposite situation: more CAMPEP accredited residency programs than graduate programs.

The pros and cons of requiring training from a CAMPEP accredited residency program as a requirement for board certification are discussed in the November/ December AAPM newsletter, the AAPM Task Group-133 report and the above Medical Physics reference. One reason for requiring accredited residency training is that medical physics is currently one of the last medical professions that does not require an accredited training program in either the US or Canada. In the US this has resulted in strong political pressure from the AAPM, the American Board of Medical Specialties that oversees 24 certification boards including the ABR, and potentially under pending Federal legislation via the CARE bill. The CARE bill stands for Consistency, Accuracy, Responsibility and Excellence in Medical Imaging and Radiation Therapy. This bill is supported by the AAPM, has not been passed by either Congress or the Senate, but if passed will require a more formalized education structure for medical physics that most likely would be satisfied with CAMPEP accredited training. The strongest argument against is the current lack of CAMPEP approved residency training slots for the number of new medical physicists required per year in North America. Currently, CAMPEP residencies only produce about 15% of the 300 residency graduates per year required in radiation therapy. Lack of funding and man power make expanding the number of CAMPEP accredited residency positions quickly problematic. Ervin Podgorsak (November, December AAPM Newsletter) also discusses other issues, a major one being that the 2014 CAMPEP residency requirement decreases the value in graduating from a CAMPEP accredited graduate program with a PhD or MSc.

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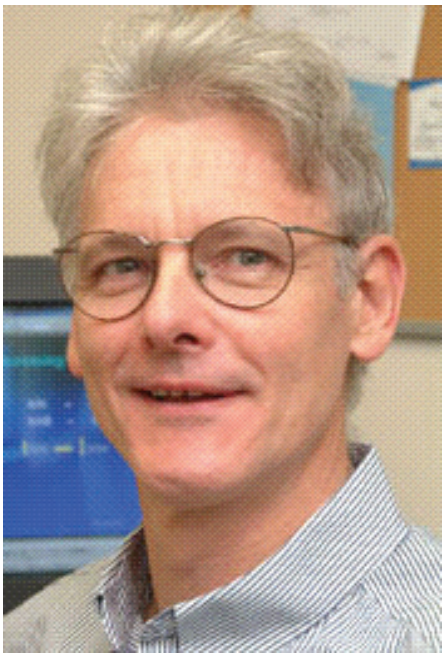


Dr. Dick Drost,
CCPM President

The CCPM board is discussing whether to implement the CAMPEP accredited residency requirement for certification, the timeline for implementation, and how to handle candidates whose graduate training was outside of medical physics. Your comments on this issue can either be sent to the editor or directly to me or one of the other CCPM board members.

Message from the COMP Chair:

I hope that you and your families have had a safe and joyous Holiday season. By the time that you read this your memories of our scientific meeting in October may be fading fast, but I can assure you that the successful outcomes of the joint meeting with CARO in Toronto are still with us. I personally found the exchanges with the Radiation Oncologists stimulating and useful and I trust that most of you experienced similar benefits. I would like to express my thanks to Peter O'Brien and to all of the volunteers involved in planning this meeting, developing the scientific program and judging of awards. Your dedication and hard work enables us to maintain the high scientific standard for which our meetings are known. This interaction has, for one, led to greater collaboration with CARO on the important issue of Quality Standards. I am

By the time that you read this your memories of our scientific meeting in October may be fading fast, but I can assure you that the successful outcomes of the joint meeting with CARO in Toronto are still with us.

hopeful that this process will be enhanced and maintained through further collaboration and support from the Canadian Partnership Against Cancer (CPAC). CPAC has received federal funding of $260M over 5 years to:

- provide excellence in governance and accountability;
- promote optimal performance;
- facilitate cancer prevention and early detection;
- support the cancer patient's journey;
- support the cancer workforce;
- promote and coordinating cancer research; and
- improve cancer information and access.

The operation of CPAC depends on 9 action groups including "Standards" and "Quality and Performance Assurance". I have had discussions with some members of these action groups and I am confident that CARO and COMP will be well positioned to develop a proposal to CPAC to enable us to obtain funding in order to continue to play a key role in the development of quality standards and to enable the establishment of documents and processes which will be nationally recognized.

The SEC will be responsible for helping to establish a COMP Students Council (SC). This Council will consist of all COMP student members (in good standing) and will enable the student members to have greater input into those activities of COMP which are of importance to them.

A year ago I reported on the successful strategic planning exercise that had been held. Progress on achieving the goals which we established has been steady, thanks to Nancy Barrett, who has been keeping the Board on task and in this issue there is a report on our progress. One of these has been the establishment of a Science and Education Committee (SEC) whose main responsibilities are:

to advise the COMP board on scientific matters and to promote and support scientific endeavors that will benefit COMP members;
to address education and training matters that arise within COMP, including continuing professional development;
to ensure that the organization meets its strategic aims and objectives in relation to education, and training activities; and
to develop high quality education courses and other activities to promote good practice within the field.

The COMP Board will soon be making an appointment of an interim-Chair for this committee with the aim of making significant progress in the next year on a number of initiatives which we had identified.

Dr. Stephen Pistorius
COMP President

Hopefully the necessary by-laws will be approved at our next AGM, and at that time a Chair for the SEC will be elected by the membership.

I am also excited about another body that will be created in 2008. The SEC will be responsible for helping to establish a COMP Students Council (SC). This Council will consist of all COMP student members (in good standing) and will enable the student members to have greater input into those activities of COMP which are of importance to them. I hope that this will make COMP more responsive to the needs of the students and will create an environment which will encourage Medical Physics students to become and remain members of COMP for their entire professional career.

In closing, I would, once again, like to express my gratitude to Peter McGhee and Will Ansbacher for their many years of sterling efforts in their respective roles as Councillor for Professional Affairs and Secretary. Their responsibilities have now been taken over by Patrick Rapley and Joe Hayward and their willingness to become involved is much appreciated. COMP is still in need of more volunteers and if you are interested in serving on the SEC I would ask that you contact me as soon as possible.

Message from the Executive Director of COMP/CCPM:

Happy New Year! I am hopeful that the holiday season was both restful and enjoyable for all. 2008 promises to be a full year for COMP as both our many volunteers and the COMP office have been working hard on your behalf. Luc Beaulieu and his team are planning a top notch 2008 Annual Scientific Meeting, which will be taking place in beautiful and historic Quebec City from June 25-28. Be sure and mark your calendars! Regular updates will be available on the website and via e-broadcast.

Both the COMP office and the Communications Committee continue to work on the new website. The new site will support our efforts to communicate internally with our members and also externally as we work to promote the profession of medical physics. The back-end of the new site (membership management, online dues renewal, online conference registration etc.) will result in increased efficiency and cost-savings for COMP. Your support and patience as we launch the new site is appreciated. As we begin the second year of the implementation of our strategic plan, we thought it would be important to update you on the progress we have made so far (see table below).

Both Gisele and I thank you for your support and look forward to continuing to work with the COMP Executive and CCPM Board to address your priorities. As always I welcome your feedback and suggestions. Please feel free to contact me at nancy@medphys.ca or Gisele at admin@medphys.ca at any time.

Ms. Nancy Barrett,

Strategic Pillar	Strategic Plan Activity	Responsibility	Status
Community	Develop a Communications Strategy and Plan	ED, Communications Committee	Complete
Community	Ask Committee Chairs to review diversity requirements and strive to make committees more diverse	Chair	Ongoing
Community	Establish relations with adjacent communities (AAPM, CARO, CAP)	Chair	CARO/COMP Joint ASM 2007 AAPM/COMP Joint ASM 2011 Clarification of COMP representation on ancillary organizations is in progress
Community	Add information about volunteer opportunities on the website	Communications Committee/ED	Will be included on new website
Community	Develop and maintain a volunteer database	ED	Ongoing
Consensus	Identify a process to approve consensus statements	Chair-Elect	Complete
Consensus	Develop guidelines to govern the development and use of consensus statements	Executive	Draft Developed
Education	Develop Terms of Reference for the new Science & Education Committee	Chair	Complete
Education	Consider adding refresher courses/workshops which include a clinical component to the ASM	(New) Education Committee	Solicited feedback from members in evaluation survey of CARO/COMP conference
Organizational Excellence	Clarify goals for Executive and Committees and align them to the delivery of the Strategic Plan; emphasize transparency	Executive & Committee Chairs	Draft organisational structure developed

2008 Sylvia Fedoruk Prize in Medical Physics

The Saskatchewan Cancer Agency is pleased to sponsor a competition for the 2008 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) and the Canadian College of Physicists in Medicine (CCPM), which will be held on June 25-28, 2008 in Quebec City.

The 2008 Prize will be awarded for the best paper on a subject falling within the field of medical physics, relating to work carried out wholly or mainly within a Canadian institution and published during the 2007 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
Canadian Organization of Medical Physics
E-mail: nancy@medphys.ca.

Each paper must be clearly marked: "Entry for 2008 Sylvia Fedoruk Prize" and must reach the above address no later than **Friday, February 15, 2008**.

This year's winner of the Sylvia Fedoruk prize hails from the newly established Mouse Imaging Centre, at the Hospital for Sick Children in Toronto Ontario.

Congratulations goes to:

Brian Nieman, Ann Flenniken, S. Lee Admanson, R. Mark Henkelman, John G. Sled, "Anatomical Phenotyping in the Brain and Skull of a Mutant Mouse by Magnetic Resonance Imaging and Computed Tomography", *Physiol Genomics **24**:154-162* (2006)

The award winners from the last four years are:

Guy-Ann Turgeon, Glenn Lehmann, Gerard Guiraudon, Maria Drangova, David Holdsworth, Terry Peters, "2D-3D registration of coronary angiograms for cardiac procedure planning and guidance. *Medical Physics, **32**(12): 3737-49* (2005)

P. Johns, M. Wismayer, " Measurement of coherent x-ray scatter form factors for amorphous materials using diffractometers", *Physics in Medicine and Biology"*, **49**, 5233-5250 (2004)

A. Samani, J.Bishop, C. Luginbuhl, D. Plewes, " Measuring the elastic modulus of ex-vivo small tissue samples", *Physics in Medicine and Biology*, **48**, 2183-2198 (2003)

J.H. Siewerdsen, I.A. Cunningham and D.A. Jaffray, "A framework for noise-power spectrum analysis of multidimensional images", *Medical Physics*, **29,** 2655-2671 (2002)

COMP/CARO 2007 Awards

Submitted by: Parminder S. Basran
Odette Cancer Centre, ON

Because the joint nature of the conference, there were a variety of awards, presented, including the Young Investigators Symposium.

Note that authors with asterisks are COMP members.

The non-student awardees are as follows:

Best Abstract in Clinical and Population-Based Oncology
#54 **Juanita Crook**, Toronto, ON
Longterm urinary sequelai following iodine 125 prostate brachytherapy

#59 **Francois Bachand**, Quebec, QC
Biopsy and PSA outcome with HDR prostate brachytherapy: A seven-year clinical experience

Best Abstract in Science and Applied Technology
#41 **Andrei Damyanovitch**, Toronto, ON
MRSI–Observed metabolic activity in prostate during PSA–"Bounce" following I25I brachytherapy

Best Abstract in Supportive Care/Symptom Control
#100 **Brita Danielson**, Edmonton, AB
Utilization of Palliative Radiation Therapy for Breast Cancer in Alberta

#117 **Glenn Bauman**, London, ON
A Phase I Trial of Helical Tomotherapy (HT) Simultaneous Infield Boost (SIB) Treatment for Patients with Brain Metastases

People's Choice Award
#52 **Deidre Batchelar*** , London, ON
Implementation of HDR brachytherapy for cervix carcinoma: Multi-modality image-guidance for efficient workflow

Best Poster Presentation
#183 **Tim Olding***, Ottawa, ON
Quality Assurance of Optical Computed Tomography for 3D Polymer Gel Dosimetry

Best oral presentation
#30 **Ulrik Elstroem**, Denmark
The Feasibility of Cone-Beam CT for Assessment of Changes in Volume and Dose Parameters for Salivary Glands During Head and Neck IMRT

(Continued on page 149)

COMP/CARO 2007 Awards… continued

(Continued from page 148)

Best Resident Oral Presentation on Brachytherapy
#90 **Sally Smith**, Calgary, AB
To Demonstrate the Acute Toxicity Profile for Computer-Assisted Ultrasound-Guided Intra-Operative Prostate Brachytherapy

Best Resident Poster Presentation
#132 **Caroline Chung**, Vancouver, BC
Radiation-induced brachial plexopathy (RIBP) following locoregional irradiation with short quality of life (QoL)

Jean Roy Memorial Award
#144 **Louise Lambert**, Montreal, QC
Self-directed learning module for radiation therapy treatment planning

Best Resident Oral Presentation
#63 **Harvey Quon**, Edmonton, AB
Predictive significance of the temporal evolution of serial magnetic resonance spectroscopies during radiotherapy for patients with malignant gliomas

Finally, the **JR. Cunningham Young Investigators Awards** were presented to

#60 **Oliver M, Gladwish A, Craig J, Wong E**
University of Western Ontario
London Regional Cancer Centre
London, ON
Development of an intensity modulated ARC therapy optimization environment

#66 **Rink A, Vitkin, A, Jaffray D**
Princess Margaret Hospital
Toronto, ON
A mathematical model of radiochromic film response to ionizing radiation

Congratulations to both groups for their outstanding work!

CALL FOR NOMINATIONS

The CAP-COMP Peter Kirkby Memorial Medal for Outstanding Service to Canadian Physics

The CAP-COMP Peter Kirkby Memorial Medal recognizes outstanding service to Canadian physics. The medal is intended to recognize service to the physics community by strengthening the Canadian physics community, by enhancing the profession of physical scientists, by effectively communicating physics to the non-scientific community, or by making physics more attractive as a career. It is intended to provide a lasting memorial to Peter Kirkby and to recognize in others the qualities for which he is remembered best: a vision of a strong Canadian physics community, dedicated efforts to support that vision and, in all things, fairness, and honesty.

The Peter Kirkby Memorial Medal was introduced in 1996 and is awarded biennially. The previous winners were:

- 2006 - Dr. Michael Steinitz, St. Francis Xavier University
- 2004 - Dr. Robert Barber, University of Manitoba
- 2002 - Dr. John R. (Jack) Cunningham, Camrose, Alberta
- 2000 - Dr. Paul Vincett, FairCopy Services Inc.
- 1998 - Dr. J.S.C. (Jasper) McKee, University of Manitoba
- 1996 - Dr. Donald D. Betts, Dalhousie University

The next medal will be awarded in the year 2008. The deadline for nominations is January 10, 2008. Nominees must be a member of at least one of CAP or COMP.

Because of the required support material, online nominations are not a viable option. Please download the Nomination Form from the CAP website: http://www.cap.ca/awards/nomination_forms/kirkby.pdf
Print and complete the nomination form accordingly, and then mail to the CAP with the required documentation.

CCPM Proposed Bylaw Changes

Submitted by: Michael Evans
McGill University Hospital, Montreal, QC

With the support of the membership of the CCPM, the Board of the CCPM is proposing the following three bylaw changes. The first two bylaw changes have been initiated in response to three different yet converging issues in the medical physics community. These first two bylaw changes aim to bring our bylaws and membership requirements in line with other certifying bodies in North America. In addition the first two bylaw changes aim to address some suggestions by the US Nuclear Regulatory Commission with respect to our initiative for Authorized Medical Physics status for MCCPM physicists. Finally, the first two bylaw changes put in place some of the framework that will be required for the eventual response of the CCPM to CAMPEP residency requirements. The third bylaw change corrects a typo and allows for electronic communication.

Bylaw Change #1 : Current Bylaw:

ARTICLE III: MEMBERSHIP CATEGORIES AND CONDITIONS FOR ADMISSION

(1) Eligibility for Membership

(a) Only those who hold graduate degrees in Medical Physics, Physics, Science with Physics as a major option, or another field deemed acceptable by the Board of the College are eligible to become Members of the College. Under exceptional circumstances the Board may approve an application from a person with only a B.Sc. in one of the above fields.

APPENDIX II: MINIMUM EXPERIENCE REQUIREMENTS

1. Membership

A Membership applicant must satisfy the Credentials Committee of the College that they have completed patient-related experience in physics as applied to medicine for two years full time equivalent after a postgraduate degree; the two years to be completed by March 31st of the year the examination will take place. The experience claimed must be relevant to the specialty under consideration and have been obtained within the last five years. The term "patient related" refers to activities such as occur in the design, development, purchase, commissioning, calibration and use of medical equipment for the diagnosis and treatment of patients. The experience required by B.Sc. level applicants will be set on an individual basis by the Board.

Bylaw Change #1 : Change to

ARTICLE III: MEMBERSHIP CATEGORIES AND CONDITIONS FOR ADMISSION

(1) Eligibility for Membership

(a) Only those who hold ~~graduate~~ **Master's or Doctoral** degrees **from accredited universities or colleges** in Medical Physics, Physics, Science with Physics as a major option, **Engineering or Mathematics** ~~or another field deemed acceptable by the Board of the College~~ are eligible to become Members of the College. ~~Under exceptional circumstances the Board may approve an application from a person with only a B.Sc. in one of the above fields.~~

APPENDIX II: MINIMUM EXPERIENCE REQUIREMENTS

1. Membership

A Membership applicant must satisfy the Credentials Committee of the College that they have completed patient-related experience in physics as applied to medicine for two years full time equivalent after a postgraduate degree; the two years to be completed by March 31st of the year the examination will take place. The experience claimed must be relevant to the specialty under consideration and have been obtained within the last five years. The term "patient related" refers to activities such as occur in the design, development, purchase, commissioning, calibration and use of medical equipment for the diagnosis and treatment of patients. ~~The experience required by B.Sc. level applicants will be set on an individual basis by the Board.~~

Comment on Bylaw change #1

Bylaw change number one addresses three issues.

1: A requirement for the university of issue to be accredited. This is not CAMPEP accreditation but refers to university-wide recognition. For example, in Canada membership in the Association of Universities and Colleges of Canada (AUCC), in conjunction with the university's provincial government charter would be sufficient. There are similar tools to assess accreditation of U.S. universities and colleges.

2: A more specific description of eligible graduate degrees, and the removal of Board discretion with respect to eligible graduate degrees. The scope of acceptable degrees has been slightly widened but made specific.

3. Removal of the possibility of B.Sc. candidates becoming eligible for Membership. This change would not have any effect on the status of current Members or Fellows of the College.

Bylaw Change #2: Current Bylaw:

APPENDIX III: EXAMINATIONS

1. Membership

Applicants for Membership are required to submit a completed application form to the Registrar and secure three satisfactory letters of reference. Two referees must be medical physicists and preferably both, but at least one, of these physicists must be Fellows of the College or physicists certified by the American Board of Radiology or the American Board of Medical Physics. The third referee must be a physician. All referees must be familiar with the candidate's work and have worked with the candidate within the last five years.

Bylaw Change #2 : Change to:

APPENDIX III: EXAMINATIONS

1. Membership

Applicants for the Radiation Oncology Physics Membership subspecialty are required to submit a completed application form to the Registrar and secure three satisfactory letters of reference. Two referees must be medical physicists, and the applicant must have been trained or supervised by one of the medical physicist referees who is either a Member or Fellow of the College, or certified by the American Board of Radiology (ABR) or the American Board of Medical Physics (ABMP). One referee must be a physician knowledgeable in the candidate's subspecialty. All referees must be familiar with the candidate's work and have worked with the candidate within the last five years.

Applicants for **the Nuclear Medicine Physics, Diagnostic Radiology Physics and Magnetic Resonance Imaging Membership subspecialties** are required to submit a completed application form to the Registrar and secure three satisfactory letters of reference. Two referees must be medical physicists and preferably both, but at least one, of these physicists must be a **Member or Fellow** of the College or certified by the American Board of Radiology **(ABR)** or the American Board of Medical Physics **(ABMP)**. **One** referee must be a physician **knowledgeable in the candidate's subspecialty**. All referees must be familiar with the candidate's work and have worked with the candidate within the last five years.

Comment on Bylaw change #2

This bylaw change addresses the standards for the Radiation Oncology Physics sub-specialty training. The other three sub-specialties remain unaffected. When the CCPM was first instituted there were not enough certified members across the country to require training by a certified physicist. The CCPM currently has some 220 MCCPM members certified in Radiation Oncology. In addition ABR and ACMP certified physicists are also eligible for attesting to the candidate's training requirements. This bylaw change brings us in line with other certifying organizations in North America.

The CCPM is open to distance-supervision, however on-site supervision would be preferable. The ABR has already tackled this issue, and they are open to helping us by relating their experiences with this. The specifics of interpreting the supervisory and training requirements of the ABR can be found on the ABR website at http://www.theabr.org/RP_Pri_Req.htm.

The specifics of this bylaw change will be addressed by amending the CCPM **Policy and Procedure number E.02 (Membership / Eligibility).** The policies and procedures manual would be adopted after a bylaw change, however a proposal for the modification might read something like this:

E. 02 (07) The certified medical physicist referee who has trained or supervised the candidate for the Radiation Oncology Physics Membership exam must have had a close interaction with the candidate. Although on-site supervision is preferable, electronic means of review for a candidate at a distance is acceptable when applied in conjunction with on-site interaction.

E. 02 (08) The certified medical physicist referee who has trained or supervised the candidate for the Radiation Oncology Physics Membership exam is expected to:

(Continued on page 169)

CCPM Chief Examiners Report as of November 2007

Submitted by: Michael Evans
McGill University Hospital, Montreal, QC

Due to the offset schedules of our annual meetings this year's CCPM Chief Examiner's report is in two sections – this one wraps up with a report on the Fellowship exams.

The Fellowship exams were held just prior to the combined COMP / CARO meetings in Toronto on Tuesday October 9 and Wednesday October 10. In total there were 13 FCCPM candidates: 12 in the Radiation Oncology specialty and one in the Nuclear Medicine specialty. Because of the large number of candidates, two parallel sessions were run on Tuesday with 5 candidates each, and the exam finished up on Wednesday with a single session examining the three remaining candidates. An additional examiner was drafted to help examine the Nuclear Medicine candidate. I would like to thank the following examiners who so generously donated their time and expertise for the FCCPM examination process: Wayne Beckham, Brenda Clark, Sherry Connors, Robert Corns, Dick Drost, Frank Prato John Schreiner, Narinder Sidhu, Katharina Sixel, John Rowlands, David Wilkins and Jake Van Dyk. In addition the logistical and administrative support of Nancy Barrett and Mary Hooey were also most helpful.

In total there were 9 successful candidates for the 2007 CCPM Fellowship exam; 8 in Radiation Oncology and one in Nuclear Medicine It gives me great pleasure to congratulate and welcome the following candidates as Fellows of the Canadian College of Physicists in Medicine:

Banskumar Arjune,
James (Chun Lam) Chow,
Francois DeBlois,
Slobodan Devic,
Lara Dyke,
Robert Heaton,
Boyd McCurdy,
Orest Ostapiak and
Terence Riauka.

Respectfully submitted
Michael Evans
November 12, 2007.

Canadian College of Physicists in Medicine Examination Schedule 2008

Membership Examination:
Applications due: 4 January 2008
Examination date: Written 15 March 2008
Oral 10/11 May 2008 (Montreal)
Fee: $450.00
Entry decisions announced on or before February 22
(Note: Non-Radiation Oncology specialty orals to be held at the same time as Fellowship orals)

Fellowship Oral Examination:
Applications due: 4 January 2008
Examination date: 1-2 days prior to COMP Meeting in Quebec City (June)
Fee: $300.00
Entry decisions announced on or before February 22 (later for those who do the membership exam in the same year)

Note:

- The application forms, exam study guide, and sample exams are available on the COMP website under the heading "CCPM Certification". Application forms must be the ones currently posted on the COMP website.
- Membership & Fellowship examination application deadlines are set to the same date. This allows the Credentials Committee to review all applications in one time period.
- **It is critical for the success of your application that you respect the deadlines**.

For further information contact the Registrar:

CCPM Registrar
c/o P.O. Box 72024
Kanata North RPO
Kanata, ON K2K 2P4
Canada
Email: admin@medphys.ca

Vignettes of 2007 COMP/CARO-Toronto ON

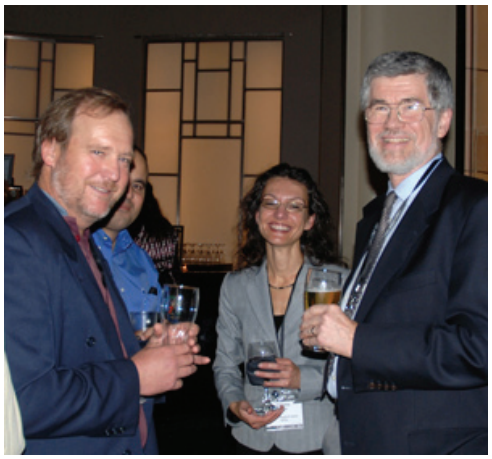
For the first time, the annual meetings of the Canadian Association of Radiation Oncologists and the Canadian Organisation of Medical Physicists were combined into a single conference. The theme of the conference was "Image Guided and Adaptive Radiotherapy", organized by co-chairs Pam Catton (CARO) and Peter O'Brien (COMP), taking place in the heart of Toronto at the Sheraton Hotel.

To say that the organizers were surprised by the larger than expected number of attendees is an understatement: there were approximately 750 attendees (or 150 more than expected). Kudos goes to the organizing committee who were able to 'adapt'! Given the nature of the meeting, there was a much larger emphasis on radiation oncology than prior meetings; however, with the increasing role of imaging in radiation oncology, there were plenty of imaging-related talks and sessions speckled throughout the conference.

Drs Stephen Pistorius (President of COMP) and Tom Pickles (President of CARO) at the CARLU

The conference started with refresher courses and a workshop on Brachytherapy, followed by a comprehensive scientific program, consisting of poster discussion session, proffered talks, invited talks, and a number of workshops. Arguably, one of the most memorable (and emotionally stirring) talks came from the COMP Public lecture, given by Dr Jean-Phillipe Pignol, Ms Isabelle Dusastre, and Ms Suzy Caley, who discussed not only science and research, but relayed the story of one woman's struggle with cancer and the ensuing legacy and charity that followed.

The public lecture was followed by a reception at the famous Carlu, where appetizers and drinks were served in dimly lit surroundings and jazz music (see pictures).



Drs Wayne Beckham, Katherina Sixel and Dave Rogers

For many, the appetizers didn't satiate palates and slowly groups of people scattered from the Carlu to nearby pubs and restaurants (after their supply of drink tickets were depleted, of course).

Upon recommendation, several of us converged on a bar off Yonge Street, called Caffe Volo. The 'beer list' is longer than their food menu! (If you think of yourself as a beer connoisseur, then you must check this out next time you are in Toronto!) A great time followed and soon it was time to head back.

Photo (c) Mikesjournal.com Used with permission.

Many attendees who stayed at the Sheraton complained of the, initially-charming-but-soon-to-be-unforgiving, chimes from the historic (old) city hall clock tower (and thereby inhibiting the desparate need for quality sleep after such a night!)

The next day was followed by excellent talks from the Peoples Choice session, including Physicist Dr Deidre Batchelar's talk on brachytherapy and image guidance which was awarded the best of the Peoples Choice (see pg 149 for details on the various award winners).

Of course, there were many well attended vendor-sponsored symposiums where many had the opportunity to observe the latest and greatest gadgets they to offer. One talk that generated a lot of buzz was the dynamic IMRT technique where the gantry and MLCs move simultaneously, delivering a complex IMRT treatment in less than 2 minutes!

There were many workshops that were offered throughout the conference. I was not sure how informative these were going to be since there was never a strong history of workshops offered at prior COMP meetings. I took a chance on a workshop called 'Making Radiation Therapy Safer' , chaired by Dr Jean-Pierre Bissonnette from PMH. The purpose here was to describe ways by which one can capture 'errors' in radiation therapy, learn from them, and possibly initiate changes in process-flow to minimize overall risks associated with radiation therapy. The workshop presentations were very well prepared and insightful. But probably more insightful were the ensuing (and frank) discussions that followed the presentations.

Nancy Barrett and Dr Dave Rogers

While this year's COMP was 'different' from other annual meetings, it proved to be highly successful.

On this note, I can't tell you how excited I am about going to Quebec City next year, who will host the next COMP conference. See you there in 2008!

2007 COMP Gold Medal Presentation

Introduction Speech by Jake Van Dyk
London Regional Cancer Centre, ON

At the 2007 joint Annual Meeting of COMP and CARO, I had the privilege of introducing John MacDonald at the Gold Medal Award ceremony. I will not repeat John's history and background, which can be found in the July issue of InterActions, but I would like add a few historical anecdotes which exemplify John and his contributions to Medical Physics in Canada. For the sake of brevity I will do this in point form.

- John was one of the first Medical Physicists in Ontario, starting there in 1951.
- He did the dosimetry on the cobalt unit that treated the first patient treatment in the world on 27 October 1951.
- He was involved in more than 30 years of teaching residents in diagnostic and therapeutic radiology, as well as graduate students both at University of Toronto (1951- 1957) and University of Western Ontario (1957-1985).
- He developed a radiation physics course with a set of lecture notes consisting of 416 pages and entitled the "Physics of Radiology", which he still used while I was a graduate student in London in 1970.
- He was involved in some very ground breaking technology including: (a) cobalt-60 for radiation treatment, (b) cobalt-60 gamma ray sterilizer used at University Hospital in London, (c) microtron developed in the UWO Physics Department.
- He worked as a consultant for Campbell Soup Company, St. Mary's, ON.
- He was a consultant for new cancer centre development for London, Toronto Sunnybrook, and Sudbury.
- Twice he served as the Chairman of the Division of Medical and Biological Physics (DMBP) of the Canadian Association of Physicists (CAP). Only Harold Johns and Jack Cunningham are others who have done this although Peter O'Brien has served as Chairman once but has also served as Chairman of COMP.
- During his term on the DMBP executive in the early 1960s, he invited George Gamow to give the Gordon Richard's Lecture in 1960. The title of the lecture was "The Nature and Origin of Life". How fundamental can one get!?!?
- John was a founding member of the CCPM.
- His research publications cover a whole range of topics from basic clinical physics of cobalt-60 treatments, to radiation chemistry, to the effects of magnetic fields on cells, to radiation damage on materials. I am sure that John is the only physicist to have published on the journal Canadian Cleaner and Launderer. The paper was entitled, "The Effects of Radiation Sterilization on Hospital Fabrics: A Pilot Study" and was published in 1970.
- John continued consulting activities even during his retirement since 1985.
- John was an active squash player. Even at the age of 87, he continues to play golf and tennis on a regular basis, several times a week.

I would like to express a hearty thank you to John for his contributions to the field of Medical Physics in Canada and to the role model that he set for graduate students in Canada.

2007 COMP Gold Medal Presentation Speech

Dr John C.F. MacDonald

When I was told that I was to receive this honour I was quite taken aback. After all , I have been not been active in the field of medical physics nor associated with radiation oncology for some 22 years. It is only through COMP and its excellent publication Interactions that I have been aware of the progress that is being made in the field.

So what can I say to you that will be meaningful or interesting after this passage of time?

I will speak about medical physics and radiation oncology as these two fields were some 55 years ago, to illustrate the differences between then and now, and to point to where I think they will go in the future.

First, let me tell you how I became involved. I graduated in physics in 1941 from UBC, spent 5 years as an artillery signal officer in World War II, and then obtained a Masters at UBC in 1948, followed by a Ph.D. from the University of Toronto.

(Continued on page 154)

John and Sheila MacDonald at the award ceremony.

2007 COMP Gold Medal Presentation Speech ...continued

(Continued from page 153)

At the time of my recruitment to be the full-time physicist in the Radiotherapy Department of Toronto General Hospital in 1951, I knew nothing about cancer or about radiation therapy, nor was there anywhere in North America where one could get formal training in the physics of the field.

At that time, Canadian radiation oncology was quite crude by the standards obtaining in England and Sweden, and so radiotherapists (as they were then known) and physicists had much to learn from their British and Swedish colleagues.

In Canada there were a few physicists involved part-time in radiation therapy from their positions in the local university, but no full-time ones. Generally, US radiation therapy was no further ahead than that in Canada. Since my position was to be full-time, I went for a year to the Christie Hospital in Manchester, the Royal Cancer Hospital in London, and the Karolinska Sjukhuset in Stockholm for training and experience. This hegira shows the difference between then and now, when excellent training is available right across Canada.

In 1951 radiology was a speciality that encompassed both cancer treatment and x-ray diagnosis, and many practitioners had a foot in both camps. Generally, radiation therapy units were in the radiology department, along with diagnostic units.

In those days the external beam therapy units at Toronto General Hospital operated at 200- 400 kVp, giving limited penetration in tissue, and preferential absorption in bony structures. Painful skin erythemas were common, and successful results were rare.

The only sources that were available for interstitial and intracavitary were radium (in tubes and needles) and radon (which was milked from radium and collected into gold seeds). One of the physicist's responsibilities was to test each item of the radium stock annually for leakage. Another responsibility, which continues to this day, was radiation protection). The acceptable exposures were many times those applicable today. It is interesting that the reduction in these figures over the 50 years was not due to observed deleterious effects, but rather from the observation that lower exposures were possible to achieve without increased cost and trouble.

A collection of COMP Gold Medal Recipients: (left to right) Doug Cormack, John MacDonaald, and Jack Cunningham

About the time I got into the act, the radiation therapy of cancer underwent a quantum jump in effectiveness with the introduction of the Canadian-developed cobalt teletherapy unit.

In my view, the cobalt unit was the catalyst that transformed radiation therapy into what it is today.

With the advent of high energy therapy came a necessary change in the way that the prescription of radiation was stated. Prior to that time the entrance skin exposure was stated in roentgens, and that at a depth was derived from central axis data and the distribution from laboriously- measured isodose curves drawn on transparent plastic. The roentgen was a poor unit, in that it really indicated the effects of the radiation in air, not tissue. So, after a great deal of discussion, led by Harold Johns, the ICRU adopted the 'rad', which was a measure of the energy or 'dose' absorbed in the irradiated material. It is surprising how quickly this rather radical change was adopted worldwide. At that time, the ICRU also adopted the 'rem' which was related to the absorbed dose, but which described the effect in biological material.

Some years later, in order to conform with the requirements of the International System of Units, the 'rad' was replaced by the Gray and the 'rem' was replaced by the Sievert (these units were larger than their predecessors by exactly a factor of 100). We take these units for granted today, but the transition took some getting used to at the time. (Incidentally, in my training period, I met and learned from both Gray and Sievert).

The planning of the treatment of a patient 50 years ago was, by present standards, quite primitive. The object was the same as it is today - to deliver a dose of radiation sufficient to destroy the tumour, while sparing the surrounding normal tissues. But we had no isocentric units, no CT and MRI scanners, and no lasers and computers to make the process as rapid and accurate as it is to-

(Continued on page 155)

From left to right

Back: Stephen Pistorius, Peter O'Brien, John MacDonald, Dave Rogers, Jake Van Dyk

Front: Doug Cormack, Jerry Battista, Sheila MacDonald, Jack Cunningham

(Continued from page 154)

day. We had to guess, rather than calculate, corrections for the shape and internal structures of the individual patient. But we did the best that we could with the tools we had. at that time. With the advent of isocentric units, these procedures became considerably easier and more accurate.

Our first computers were huge, slow and difficult to use in treatment planning. It was Jack Cunningham at the PMH (one of last year's gold medal recipients) who was instrumental in the introduction and development of the small and efficient computers in general use today. Much of the sophisticated software was also due to his efforts.

It wasn't long before betatrons supplanted cobalt as the unit of choice, and they were supplanted in turn by the computer-controlled linear accelerators in general use today. I was fortunate to be involved in the physics of these units as they came into use, and even to have a hand in their development as therapeutic tools.

I should mention in passing that nuclear medicine, as we know it today, did not exist until late in the 1950's. Again, the expertise provided by the physicists brought diagnostic and therapeutic isotopes into medicine. Cobalt, cesium and gold soon replaced radium and radon in interstitial and intracavitary therapy, and all the myriad of other isotopes came into use in both therapy and diagnosis.

I was very lucky to have been involved in medical physics in the 1950s and 60s, because these were the years in which the physicist became a necessary participant in the practice of radiation oncology, and indeed, in many aspects of medicine. This synergy of science with medicine has now extended to diagnostic applications of radiation, as well as to ultrasound and MRI. Many of the physicists who entered through the doors of the radiation oncology department became involved in such fields as radiobiology, and they still continue to make major contributions to many aspects of medical research and treatment.

One final remark about cobalt-60 teletherapy. Many years ago, we developed in London a small-field technique involving wedge filters for the treatment of early epiglottal cancer. In 1994 I was diagnosed with cancer of this site, and was treated at the Vancouver Island Cancer Centre using this identical technique. The fact that I am here, and speaking to you in 2007, should tell us all

From left to right: Stephen Pistorius and Jake Van Dyk congratulate the Gold Medal recipient.

CURRENT CORPORATE MEMBERS
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Best Medical Canada

Phone: 613-596-4563
www.bestmedical.com

Contact: Wendy Chan
Wchan@teambest.com

CMS Inc

Phone: 1-800-878-4267
www.cms-stl.com

Contact: Katie Booth
katie.booth@cmsrtp.com

Core Oncology

Phone: 416-201-2011
www.coreoncology.com

Contact: Norm LeRoux
Norm.LeRoux@coreoncology.com

CSP Medical

Phone: 1-800-265-3460
www.cspmedical.com

Contact: Steve Gensens
sg@cspmedical.com

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Phone: 1-888-933-0383
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Contact: M. Michel Donaldson
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Elekta Canada

Phone: 1-800-535-7355
www.elekta.com

Contact: Wendy Hornby
wendy.hornby@elekta.com

Fluke Biomedical

Phone: 440-248-9300
www.flukebiomedical.com/rms
Contact: Mark Marlowe
Mark.Marlowe@flukebiomedical.com

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www.harpell.ca

Contact: Ron Wallace
info@harpell.ca

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Phone: 708-755-7000
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Phone: 1-800-465-3666
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Contact: Tom Chadwick
tchadwick@mds.nordion.com

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Phone: 519-438-2409
www.modusmed.com

Contact: John Miller
jmiller@modusmed.com

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Phone: 514-985-2442
www.resonantmedical.com

Contact: Desirée Dupuis
ddupuis@resonantmedical.com

Scanditronix-Wellhofer North America

Phone: 901-386-2242
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Contact: Gerry Vantellingen
gerry.vantellingen@iba-group.com

Siemens Canada

Phone: 514-822-5141
www.siemens.com

Contact: René Boyer
rene.boyer@siemens.com

Standard Imaging Inc

Phone: 1-800-261-4446
www.standardimaging.com

Contact: Eric DeWerd
edewerd@standardimaging.com

Sun Nuclear

Phone: 321-259-6862
www.sunnuclear.com

Contact: Mark Siviter
marksiviter@sunnuclear.com

TomoTherapy Inc.

Phone: 608-824-2889
www.tomotherapy.com

Contact: Jodi Pachal
jpachal@tomotherapy.com

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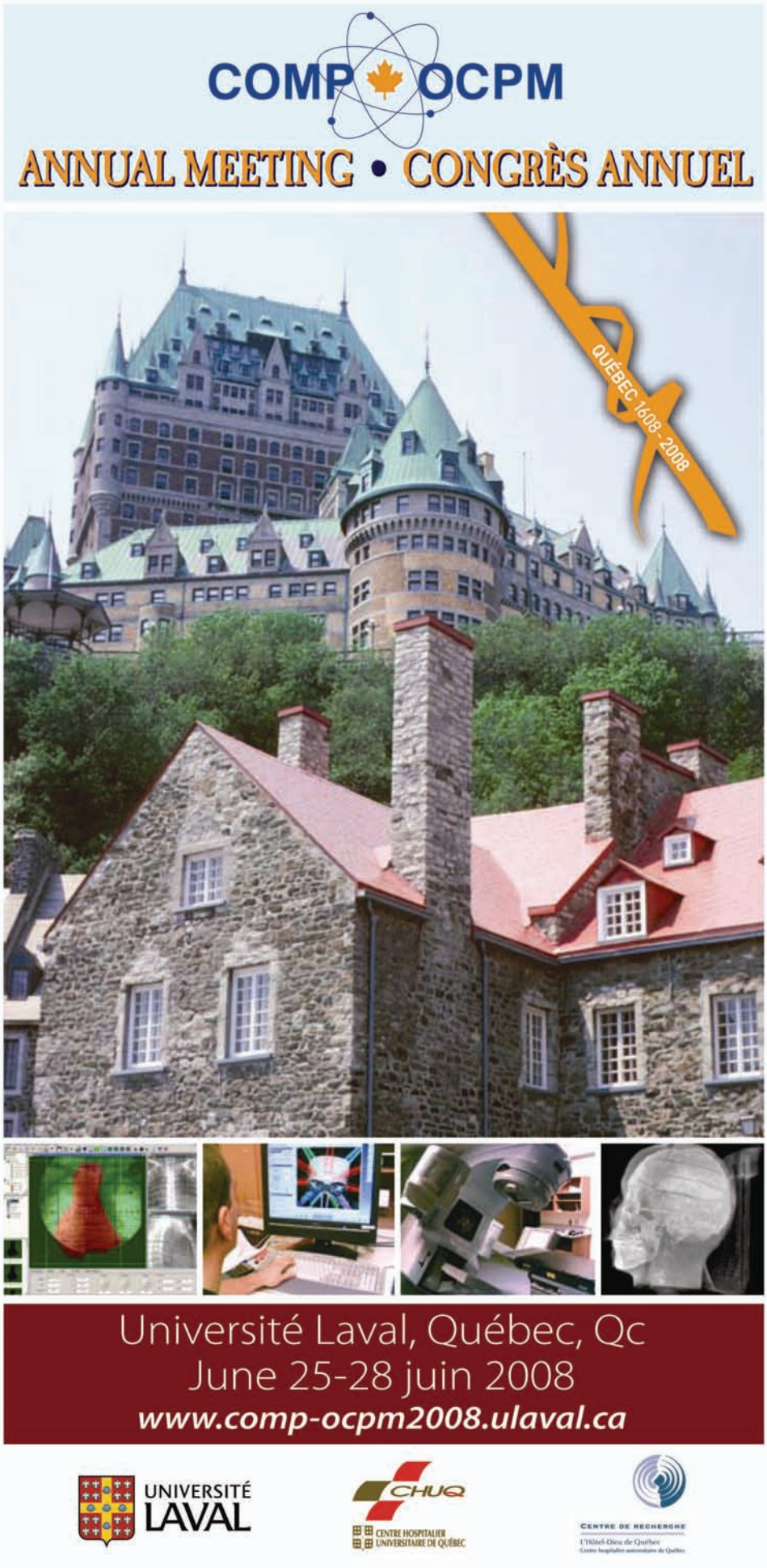
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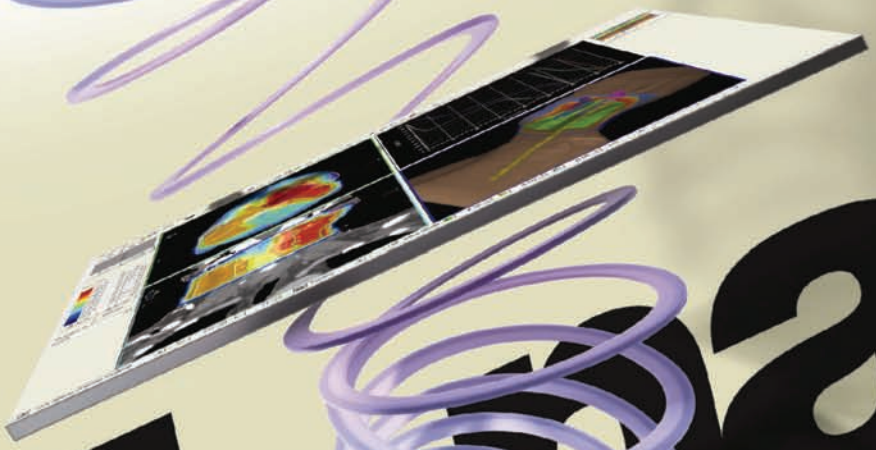

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Conference Report: The 9th Biennial ESTRO Meeting on Physics and Radiation Technology for Clinical Radiotherapy

Submitted by: Alejandra Rangel (Ph. D. Candidate)
University of Calgary, AB

The biennial ESTRO meeting on Physics and Radiation Technology for Clinical Radiotherapy was held in Barcelona between September 10 and 13, 2007. The official opening ceremony took place the night before the scientific programme in the main auditorium of the Catalunya Palace of Congresses. There the president of ESTRO, Michael Bauman, and the chairpersons of the scientific and national organizing committees welcomed more than 900 international participants (approx. 25 of whom were Canadians) to the conference.

The scientific programme of the conference offered teaching lectures, symposia and proffered paper sessions primarily directed towards physicists and radiation therapists. Among the main areas of discussion were the roles of image guidance in external beam therapy, brachytherapy and the state of the art of heavy particle therapies. There were several sessions on biologically adaptive therapy and emerging technologies such as Tomotherapy and Cyberknife including the increasing needs of quality assurance.

IGRT was one of the hot topics discussed in several sessions. Although the advantages of using MR, CBCT and MV Imaging were highlighted, the concerns of additional radiation dose and the consequent risk of secondary cancer induction due to these techniques were raised as well. Both perspectives were included in an interesting debate entitled: “Have we forgotten the ALARA principle in IGRT?” Later in the conference, the issues surrounding an MR/Linac combination were brought to the discussion table as an option in reducing margins, although this strategy is still under development and facing design challenges.

In addition to the discussion on emerging technologies, QA aspects were discussed with a special emphasis on the need of new and less-prescriptive paradigms to support the safe use of modern equipment. “Technology develops faster than we can write a report,” said Donja Dieterich from the Stanford Cancer Centre when she was describing the FMEA (Failure Modes and Effects Analysis) approach of QA in radiotherapy.

Pareto and EUD-based optimization algorithms in treatment planning systems were the topics in one symposium. According to one of the speakers, the EUD is becoming the standard to define cost functions as it has demonstrated to be an efficient tool that facilitates the rapid evaluation of a variety of dose distributions obtained in IMRT. However, questions remain concerning the validity of the EUD for tumors.

Another very interesting session discussed the implementation of Biologically Conformal Radiation Therapy (BCRT) and biologically adaptive planning. Here, the idea is to take advantage of dose inhomogeneity to locate hot spots based on cell density or hypoxia. The final goal, according to one of the speakers in a teaching lecture, is to use functional imaging (i.e. PET-CT) to move away from uniform dose distributions.

Most of the 150 proffered papers and 90 invited speakers arrived from (in descending order based on number of sessions) the Netherlands, United States, Germany and the United Kingdom. Canadians including Joanna Cygler from the Ottawa Hospital, Daniel Letourneau from the Princess Margaret Hospital and Brigitte Reniers from the Maisonneuve-Rosemont Hospital, were found on the list of speakers, just to mention a few. An interesting strategy of this conference compared to the North American model was the relatively greater time dedicated to invited talks (approx. 4.5 hours per day) compared to the proffered papers (approx. 3 hours per day). As a result, the information presented by the various speakers seems to flow in a coherent way, allowing the audience to create a continuous line of thought. For example, in one symposium with 3 speakers, the discussion led the audience smoothly from the current knowledge of radiation carcinogenesis through the implications for radiation therapy to appropriate management strategies.

Satellite symposia were offered during lunch hours by BrainLab, Elekta, IBA, ScandiDos, Sun Nuclear and Siemens, where they presented results and clinical experiences gained from using the equipment of these various vendors. Future developments of the respective companies were also introduced in these lunchtime discussions. A poster session took place on the evening of the first day. Almost every interesting topic in radiation therapy was covered with more than four hundred posters displayed in the exhibition area.

The ESTRO night out took place at “Porto Olympico” on the beautiful Barcelona beaches. There we had the chance to enjoy paella (a Spanish dish) and the serenade of bohemian singers under the moon light.

The biennial ESTRO Meeting met and exceeded all my expectations of a very interesting and well organized conference. I would definitely recommend it to all professionals dedicated to therapeutic radiology and oncology. The opportunity to present my work in a poster at the ESTRO conference was supported by the Strategic Training Program in Translational Cancer Research, a partnership between CIHR, the Alberta Cancer Board and the National Cancer Institute of Canada, and by the University of Calgary Graduate Conference Travel Award.

Joint COMP/CARO Conference Survey

Submitted by: Nancy Barrett
Executive Director COMP

This year's Annual Scientific Meeting was held jointly with the Canadian Association of Radiation Oncologists in Toronto from October 10 to October 13, 2007.

The Scientific Committee was chaired jointly by COMP and CARO and the program was a combination of the practices of both organizations.

Although an overall conference evaluation was distributed at the end of the meeting, we thought it would be helpful to get feedback from COMP delegates regarding the aspects of this year's program that have not typically been part of previous COMP annual scientific meetings.

Thank you to those delegates who took the time to complete the survey. All respondents were eligible to be entered in a draw for a $50 gift certificate from Chapters and we extend congratulations to Jette Borg of Princess Margaret Hospital – this year's winner.

Respondent Profile

In total, 235 COMP members attended the conference – a very good showing from our community. Of these 235, 68 or 29% completed the online survey. 74% of respondents were full COMP members and 26% were student members.

Conference Venue

22% of respondents indicated that their decision to attend the conference was most influenced by the fact that it was located in Toronto. 44% of respondents stayed at the Sheraton Centre hotel. Twenty of the respondents commented that they found the hotel expensive.

Conference Program

78% of respondents indicated that they would like to see COMP work with CARO to host joint meetings on a regular basis (but not more often than every four years was the most common suggestion).

Delegates were asked whether they would like to see certain aspects of this joint meeting introduced at COMP standalone meetings. The following table summarizes the feedback received:

Program Element	Include at COMP Meetings	Do Not Include at COMP Meetings
Pre-conference Sessions (*for an additional fee*)	50%	50%
Concurrent Workshops	57%	43%
Poster Review Session	79%	21%
Vendor Satellite Symposia	79%	21%

With respect to the pre-conference sessions, many respondents felt that the additional registration fee was too high (particularly for students) for the quality of the content provided.

While the comments related to the concurrent workshops were positive, there was a strong feeling that workshops should not be taking place at the same time as the paper sessions.

The respondents viewed the Poster Review session very favourably and felt that, with some improvements to how it was organized, it could be a good addition to a standalone COMP meeting.

There is also support for including vendor satellite symposia at the conference as long as they don't interfere with the scientific program, offer users practical information and are not a sales presentation.

In terms of what could have been improved, respondents indicated that meeting rooms and reception areas often felt crowded. It was suggested very clearly that the usual COMP practice of scheduling the banquet on Friday night (as opposed to Saturday) and including the cost in the conference registration fee should be maintained. Overall, respondents felt that the conference was well organized and the opportunity to interact with oncologists was very valuable.

We would like to thank you once again for participating in the survey. We will use the information gathered as we prepare for the 2008 meeting. If you would like to see the full results of the survey, please contact Nancy Barrett at 613-599-1948 or nancy@medphys.ca.

Errata

October 53(3): p 135
The reviewer *The physics of radiotherapy x-rays and* electrons was completed by Sherry Connors of the Cross Cancer institute, Edmonton AB. This was unfortunately not printed in the publication. The Editor apologizes for this error..

October 53(3): (and earlier editions)
Dr Robert Corns, Deputy Chief Examiner, was not included in the contact information for the last several editions. The Editor apologizes for this error.

Canadian Organization of Medical Physicists
Organisation Canadienne des Physiciens Médicaux

Annual General Meeting
MINUTES

Location: Sheraton Centre Hotel, Toronto ON.
Date: 13 Oct 2007
Chair: S. Pistorius, Secretary: W. Ansbacher
Present: 44 members (quorum is 42)

Meeting called to order by S. Pistorius at 5:15 pm

1. **Adoption of the Agenda**
   Motion to adopt: M. Evans **Carried**

2. **Minutes of previous AGM,** Saskatoon, 2006
   A correction was made to the name L. Beaulieu in item 7.1
   Motion to adopt as amended: N. Sidhu **Carried**

3. **Report of the Chair** (S. Pistorius)
   a) S. Pistorius reported that many of the activities this year had been shaped by the five "pillars" of community, consensus, education, profile and excellence. These had been formulated at the Executive's Strategic Planning Exercise (SPE) held in November 2006. There had been a good response to the survey preceding this, and the documents concerning the SPE had been placed on the website.

   b) Action items for this year included identifying potential new COMP members, developing a Communication Plan (now in draft form), recognizing and identifying volunteers, and strengthening links to external organizations.

   c) A Science and Education Committee (SEC) is to be formed. It will have a mandate to create a Student Council and to coordinate training and education through winter and summer schools, and refresher courses. He asked Members to consider volunteering or to provide names of nominees for the Chair of this Committee

   d) An Executive Subcommittee is to be struck to manage many of the day-to-day activities of the Executive; and a review of the Bylaws is necessary to permit changes such as the inclusion of the Chairs of the SEC and RSTSAC (Radiation Safety & Technical Standards Committee) on the Executive. The Bylaw review will also consider changes to the membership categories, including the possible establishment of a form of "fellowship".

   e) COMP has agreed to continue non-monetary sponsoring of JACMP (Journal of Applied Clinical Medical Physics), and several nominations for the Editorial Board had been received. These volunteers were thanked for their involvement.

   f) Pistorius also reported that Paul Johns, COMP representative on the CAP's Kirkby Medal committee, was calling for suitable nominations of senior physicists for the Medal.

4. **CCPM President's Report** (R. Drost)

   a) 9 new Fellows and 23 new Members were welcomed into the College. There were now a total of 144 Members and 126 Fellows of the CCPM

   b) K. Sixel retired as Chief Examiner and S. Connors became the new Secretary/Treasurer as of 1 Jan., 2008

   c) The H.E. Johns Award this year went to Rao Khan from the Tom Baker Centre in Calgary. He will use it to attend the ESTRO course "Physical and technical aspects of radiotherapy"

   d) W. Beckham was thanked for providing support for the CAMRT dosimetry examination process, and P. Dunscombe and E. Podgorsak were similarly thanked for their work on CAMPEP

   e) Drost mentioned the proposed ABR requirements for certification, in which a resident would have to pass through a CAMPEP-accredited program before being permitted to sit the Board exams. The implications for CCPM were still being discussed, these included the general raising of standards, maintaining CCPM equivalency and recognition regarding State licensure, and the implications for smaller or non-accredited residency programs. It was noted that although there were now 5 accredited RT programs in Canada, only one was in Diagnostic Imaging.

(Continued on page 162)

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The time frame for the proposed changes, taking account of a normal 2-year residency, meant that a policy had to be in place by 2010. ABR was expected to have a statement by the time of the RSNA meeting in 2007, and the CCPM would then expect to have a statement ready in 2008 in time for endorsement at the AGM

A question was raised about the time value of a residency. Two years are currently required to qualify for MCCPM, but a suggestion had been made that candidates with no Medical Physics background or those in a non-accredited program would perhaps require one more year in future.

5. Treasurer's Report (M. Mondat)

a) The 2006 accounts, audited by Mr. Len Bolton CGA and found to be in good order, were presented. P. Johns asked about the change in an expense item from 2005 and was informed that it related to costs of having both the Administrative Secretary and the Executive Director on staff in 2005

Moved: (J. Schreiner) To accept L. Bolton as auditor for the current year. **Carried**

b) In the discussion of the 2007 statements, it was mentioned that variances arose from the increase in membership dues, from a one-time expense of $2000 for CCPM recertification, from the lack of an Executive Midyear Meeting (MYM) this year, and from a decision taken at the 2006 MYM to pay the CAMPEP sponsorship out of the 2007 budget.

c) For the 2008 budget, start-up costs for the new website and board meeting expenses were noted as departures from previous years' patterns. It was noted that the net assets were decreasing slightly, but that the Executive had decided not to ask for an increase in dues this year.

Discussion: L. Beaulieu asked whether videoconferencing could be used to significantly reduce the cost of board meetings, and was informed that this is definitely under consideration.
A question was asked whether the profit from the Annual Meeting was now included in the estimates; the answer being "yes" as previous meetings had all turned the budgeted deficits into profits. S. Connors pointed out that the meeting was supposed to be cost-neutral with vendors' donations providing the profit.

Moved: (P. McGhee) That the 2008 Budget be accepted **Carried**

6. Secretary's Report (W. Ansbacher)

a) At the time of the AGM the membership was as follows. The confusion over the 2006 figures had been sorted out by the Executive Director after the previous AGM

Category	Sept 2007	June 2006	Change
Full	420	396	+24
Associate	11	9	+2
Student	113	69	+44
Retired	6	7	-1
Emeritus	9	9	0
Corporate	19	22	-3
Totals	**578**	**508**	**+70**

b) Four proposed Bylaw Amendments had been mailed to all Full Members. Postal votes had been tabulated (a total of 84 valid votes were received) and were included in the present voting.

Moved (#1) (W.Ansbacher) To change the six paragraphs in five bylaws by deleting the struck-out text and inserting the underlined text in all the following *[appended to the Minutes]* paragraphs **Carried** (Against: 0)

Moved (#2) (W.Ansbacher) To change the rule concerning Retired Members by deleting the struck-out text: "Retired Members are members who in the past were eligible for Full Membership but by virtue of retirement no longer practice medical physics for remuneration nor are gainfully employed in another field"

Discussion: A statement from D. Rogers was read out which generated some discussion about the implications of the change. An amendment to the Motion to retain "for remuneration" only, failed for lack of a seconder.

Moved (J.Schreiner/R. Drost) To table the Motion (#2) for further discussion **Carried** (Against: 0)

Moved (#3) (W.Ansbacher) To change the rule concerning Emeritus Members by inserting the underlined text: "Emeritus Members are members who meet the requirements for Retired Membership, or who will meet the requirements by the next General

(Continued on page 163)

(Continued from page 162)

Meeting, and who have been appointed to the category of Emeritus by the ..."

Carried (Against: 2)

Moved (#4) (W.Ansbacher) To change the rule concerning the auditor by deleting the struck-out text.

"The members shall at each annual meeting appoint an auditor to audit the accounts of the organization for report to the members at the next annual meeting.The auditor shall hold office until the next annual meeting provided the officers may fill any casual vacancy in the office of auditor. Any remuneration of the auditor shall be fixed by the Executive of officers" **Carried** (Against: 2)

Bylaw Amendments 1, 3 and 4 will be forwarded to Industry Canada for Ministerial approval

7. Communications Committee Report (M. Cottreau)

a) Work on the website infrastructure was proceeding. A new website host had been found, replacing the AAPM host, and at a lower cost. The web page formats would also change.

b) In future, it would be possible to choose not receive *InterActions* by mail, and abstracts would be able to be submitted electronically for the Annual Meeting

c) A call was made for contributions to *InterActions*

8. Professional Affairs Committee Report (P. McGhee)

a) Terms of Reference have been revised to include the explicit duration of appointments.

b) A Scope of Practice for Medical Physicists has been drafted and will be presented to the Executive by the end of the year.

c) The next Professional Survey, which appears to be highly-valued by the Membership, will go out in May 2008. A Technical Survey, of what elements are important to COMP Members, is also in the works.

d) Physics Assistants have been invited to join COMP as Associate Members. If numbers permit, a separate membership category for them could even be contemplated. Within COMP they could then decide what their goals should be – certification or otherwise..

e) PAC is establishing a list of, and co-ordinating a reporting structure for, the many members who represent COMP to other professional organizations.

f) Bone Mineral Densitometry (BMD) is now subject to certification in Ontario. The position of PAC is that the issue should be handled by RSTSAC, who will develop a technical standards document and Statement of Qualifications for BMD physicists.

g) Some Evidence of Competency documents, to allow comparison between COMP and foreign organizations, have been completed, but volunteers are still needed to develop these for many other countries.

h) As part of the Communication Plan, PAC had identified a need for prominent individuals to become the "face of Medical Physics" in each province, for media relations and to maintain a profile with governmental agencies.

9. Radiation Safety & Technical Standards Advisory Committee Report (R. Corns, M. Evans & P. Dunscombe)

Twelve CAPCA standards have been approved by COMP and two more are under review. Once again, comments are being sought from these draft documents on the web site

10. Nominations Committee (P. O'Brien)

Two positions are to be filled:

a) **Secretary:** Patrick Rapley, (Thunder Bay Regional Health Sciences Centre) had previously been nominated. Nominations were called from the floor, and none was received **Patrick Rapley declared elected**

b) **Councillor for PAC:** Joe Hayward (Juravinski Cancer Centre, Hamilton) was the only prior nomination. Nominations were called from the floor, and none was received **Joe Hayward declared elected**

The departing members, Peter McGhee (4 years as Councillor for PAC) and Will Ansbacher (3 years as Secretary) were thanked for their service and each was acknowledged with a plaque.

11. Executive Director's Report (N. Barrett)

a) N. Barrett explained the advantages and benefits of COMP's contract with her company, AMCES, which included the services of Gisele Kite, her administrative assistant. Day-to-day services included financial management, procuring an Auditor, and managing the GST.

(Continued on page 164)

(Continued from page 163)

b) Activities this year included improving the advertising structure which resulted in increased revenue; e-broadcasts of job advertisements; development of the Communication Plan; obtaining RFPs for the new web site; organization of archival material; and ongoing development of the Executive Handbook.. Support is also provided for the Annual Meeting in the form of generating RFPs for the site; and obtaining sponsorship.

c) The Executive Director also sits on most COMP committees, is involved in policy research and serves as CCPM's director, which provides a most useful overlap between the two organizations.

S. Pistorius thanked N. Barrett for her valuable services throughout the year.

12. Future Conferences: (P.O'Brien**)**

2008: Quebec City, organized by L. Beaulieu. Meeting will take place 25-28 June at the Chateau Frontenac
2009: No submission has yet been received
2010: Ottawa, at Carleton University
2011: Vancouver, joint meeting with AAPM

Motion to adjourn: (P. O'Brien) **Carried**
Meeting adjourned at 6:30 pm.

Appendix: Bylaw Amendment #1

Motion (#1): To change the six paragraphs in the five bylaws below by deleting the struck-out text and inserting the underlined text in **all** the following paragraphs:

c2.ARTICLE IV: OFFICERS,; B) ELECTION OF OFFICERS, paragraph 6

If more than one nomination is received by the nominating committee, election of officers will be made by mail <u>letter</u> ballot according to article X.

c2.ARTICLE V: MEETINGS OF THE MEMBERS, paragraph G.

Notice by mail <u>or electronic means</u> shall be sent at least 30 days prior to the meeting to all members. A notice in the newsletter shall be considered valid providing the newsletter was mailed <u>or transmitted electronically</u> at least 40 days prior to the meeting to each voting member. <u>Where letter ballots are anticipated an additional 30 days shall be required to meet the provisions of Article X</u>

ARTICLE X: VOTING BY LETTER BALLOT, paragraph 2ARTICLE X VOTING BY LETTER BALLOT2

All ballots shall be sent by ordinary mail <u>or electronic means</u> to Full Members by the Secretary of the Association and shall be returnable not less than thirty (30) days from the date of mailing.

ARTICLE XI: AMENDMENTS, paragraphs 3 & 4

The Secretary shall submit any such proposals to all members in writing by mail <u>or by electronic means</u>, at least 60 days before they are to be considered, and shall place discussion of these proposals on the agenda of the meeting.

At least two-thirds of the votes cast shall be in favour of the proposed additions, corrections or amendments before they shall be adopted. Postal votes <u>Letter ballots</u> from absentee members shall be accepted.

BYLAW NUMBER TWO: DISSOLUTIONBY-LAW NUMBER TWO DISSOLUTION1

A) With the concurrence of the CCPM Board, the Executive of the COMP shall mail to <u>notify</u> all members a notice that dissolution is proposed on a certain date unless a majority of COMP Full Members vote, <u>by letter ballot according to Article X</u>, against dissolution.

COMP Treasurer's Report
2007 AGM, Toronto ON

Maryse Mondat, Hôpital Maisonneuve-Rosemont, Montréal, QC

The following is a summary of on the 2006 financial year statements:

1. As of December 31, 2006 the current asset of the organisation stood at $195,438. $29,790 was in our current account, $18,082 in the beanstream account, $21 453 in the conference account and the value of our GIC investments stood at $129, 956. There were $5074 in cheques not cleared.
2. Dues for the 2006 campaign brought in $53 986 in total (Corporate $10,296; Full $40,107, Student $1,780, Other $460) of which $39 706 were received during 2006 and $13,650 during 2005 and $630 in 2007.
3. Expenses for web site were of $11,215 and newsletter were $20 315. Only the PAC for conference call claimed committee expenses for $102.
4. The COMP profit from the 2006 scientific meeting totaled $30,885 including the 20% LAC return. The net profit after the LAC return was $24,708.
5. As discussed at the 2006 AGM. The net profit of $41,914 has not been deferred to 2006.
6. The Strategic Planning exercise cost $8101.
7. The revenues for 2006 were reported to the Canadian Customs and Revenue Agency in 2007, and they will be for all subsequent years.
8. For the first time, Mr. Len Bolton C.G.A. of Nephin & Winter, Chartered Accountants, audited the books. The revenue and expenses were recognized in the year they are earned or incurred. The 2006 financial statements reported are from them. The 2005 statements were not audited.

The following are some of the highlights of the 2008 budget:

1. The 2008 budget for the website is $2,000. A new website is in development. The cost of its development is put as a one time ($5,226 in 2007 and $5,226 in 2008).
2. The 2008 budget for the professional affair committee survey is $3,200. It includes the salary survey and a new technical survey.
3. The 2008 budget for the executive board meeting is $13,500. It is increased to reflect the addition of new board members.

CANADIAN ORGANIZATION OF MEDICAL PHYSICISTS

BALANCE SHEET

AS AT DECEMBER 31, 2006

	2006	2005
ASSETS		
CURRENT		
Cash	$ 64,252	$ 70,714
Accounts receivable	1,366	3,059
Investments, at cost	128,589	124,320
Prepaid expense	1,231	238
	$ 195,438	$ 198,331
LIABILITIES		
CURRENT		
Accounts payable and accrued liabilities	$ 23,254	$ 7,511
Deferred income	17,223	15,765
	40,477	23,276
SURPLUS		
Accumulated surplus	154,961	175,055
	$ 195,438	$ 198,331

CANADIAN ORGANIZATION OF MEDICAL PHYSICISTS

STATEMENT OF REVENUES AND EXPENDITURES

AND ACCUMULATED SURPLUS

FOR THE YEAR ENDED DECEMBER 31, 2006

	2006	2005
INCOME		
Advertising	$ 34,724	$ 19,344
Scientific meeting	90,526	121,755
Professional development/education		
Membership dues	53,486	51,799
Subscriptions	6,480	14,410
Other revenue	3,477	1,133
Interest	7,716	827
	196,409	209,268
EXPENDITURES		
Communication committee	43,732	35,734
COMP/CCPM representation	6,021	688
Management - services (note 3)	48,462	63,959
Bank charges	5,395	408
Strategic planning	8,101	-
Office operation	11,457	11,941
Scientific meeting	65,818	80,862
Survey	3,392	-
Other	1,085	6,059
Executive and board meetings	12,162	13,477
Professional fees	2,000	
Subscriptions	8,878	11,817
	216,503	224,945
EXCESS OF EXPENDITURES OVER REVENUE	(20,094)	(15,677)
ACCUMULATED SURPLUS, BEGINNING OF YEAR	175,055	190,732
ACCUMULATED SURPLUS, END OF YEAR	$ 154,961	$ 175,055

COMP Treasurer's Report… continued

Budget :

Description	2006	2007	2007	2008
GENERAL INCOME	**Budget**	**Budget**	**Estimated**	**Budget**
Advertising	$25 000	$30 000	$30 000	$30 000
Revenue (AGM)	$30 000	$20 000	$20 000	$25 000
Dues	$48 000	$72 000	$75 500	$75 000
Short-Term Interest	$100	$100	$100	$100
GIC			$2 059	$2 000
TOTAL	**$103 100**	**$122 100**	**$127 569**	**$132 100**
OPERATING EXPENSES				
Awards/Support	($3 000)	($4 000)	($4 000)	($4 000)
Bank Charges	($100)	($4 100)	($2 750)	($2 200)
Certified auditor		($1 500)	($2 100)	($2 200)
Comm.-Communications				
Oper. exp.	($1 500)	($1 000)	($1 000)	($1 000)
Directory	($5 000)	($5 000)	($7 500)	($7 500)
Newsletter	($14 000)	($20 000)	($25 000)	($25 000)
Web site	($12 000)	($12 000)	($12 000)	($16 000)
Committee-PAC				
Oper. exp.	($2 000)	($1 600)	($1 000)	($1 500)
Survey		($1 600)		($3 200)
Committee-RSTSAC	($3 000)	($1 000)	$0	($1 000)
COMP/CCPM Representation	($8 000)	($5 000)	($5 000)	($5 000)
COMP Gold medal			($200)	
Corporate Fees	($30)	($30)	($30)	($30)
Discretionary Fund	($1 000)	($1 000)	($1 000)	($1 000)
Executive/Board meetings	($12 000)	($12 000)	($5 390)	($13 500)
Insurance	($1 000)	($5 000)	($4 500)	($5 000)
Management services	($45 000)	($70 000)	($69 500)	($70 000)
Office	($2 500)	($3 000)	($3 000)	($3 500)
Plaques	($200)	($200)	($200)	($200)
Public relations	($1 500)	($1 500)	($1 500)	($1 000)
Society Memberships	($2 000)	($2 000)	($2 224)	($2 000)
TOTAL EXPENSES	**($113 830)**	**($151 530)**	**($147 894)**	**($153 130)**
NET (INCOME - EXPENSES)	***($10 730)***	***($29 430)***	***($20 325)***	***($21 030)***

Estimated bank account at the end of the year :

Bank account (first of the year)		**$199 499**	**$199 499**	**$156 225**
Liabilities (2006)		($18 374)	($18 374)	
Operating revenue		($29 430)	($20 325)	($21 030)
GIC interest		$3 000	$3 000	$3 000
New website 2008			($5 226)	($5 226)
CAMPEP 2007		($2 350)	($2 350)	
Bank account (end of the year)		**$152 345**	**$156 225**	**$132 969**

4th Annual Association québécoise des physicien(ne)s médicaux cliniques (AQPMC) Workshop

Submitted by: Michael Evans
McGill University Health Centre, PQ

The fourth AQPMC (Association québécoise des physicien(ne)s médicaux cliniques) workshop was held in Sherbrooke Quebec on Saturday November 17. The theme this year was Radiation Protection, and the AQPMC was also fortunate to have the participation of the Director and several Project Officers of the Class II group of the Canadian Nuclear Safety Commission (CNSC).

The morning session was intended to provide a better understanding of the role of the Class II regulators in the radiation therapy environment, and to provide some interaction between the Class II Radiation Safety committee of the AQPMC and the CNSC. Talks given by the CNSC included : *A summary of the roles and responsibilities of the CNSC* (Colette Pigeon-Jolicoeur); *Regulation of non-Class II installations* (Alexandre Coligan) *Risk based classification of Class II installations* (Kavita Murthy – Class II Director); *Type I inspections* (Jacinthe Plante) and *Safety culture in Class II installations as observed during inspections* (Tanya Hewitt). Following these talks a summary of the composition, roles and work of the AQPMC Radiation Safety committee was given by Lysanne Normandeau. The morning session finished up with a lively discussion amongst the CNSC presenters and the audience, and the membership of the AQPMC was certainly encouraged by the openness of the CNSC to suggestions from radiotherapy centers that had recently undergone Type I inspections.

Lunch was served, and at this time there was an occasion for the guests from the CNSC to meet members of the AQPMC community and exchange ideas on improving the links between the two organizations. This was the first time the AQPMC workshop had the involvement of an outside organization such as the CNSC, and there was a general agreement that the visit of the CNSC was especially useful and informative for physicists having some radiation safety responsibilities, as well as for the medical physics community at large. The AQPMC workshops are also open to medical physics graduate students, and this was a good forum for students to learn about, and meet regulators from, the CNSC.

The afternoon session continued with invited talks on current issues in radiation safety. These talks included : *Construction of a temporary bunker in Ottawa* (David Wilkins – Ottawa); *Dosimetry for CT Cardiac Units* (Robert Ouellet – Montreal); *Radiation safety issues for the pregnant patient undergoing external beam or brachytherapy treatments* (Mario Chretien - Quebec); *Permanent prostate implants – patient recommendations and procedures in the case of unexpected early death* (Nicolas Varfalvy – Quebec) and *Radiation disaster management for hospital based physicists* (Lysanne Normandeau – Montreal)

Luc Beaulieu, the current AQPMC president gave a summary of the day's talks and the closing remarks. The organizing committee from Sherbrooke under the direction of Luc Ouellette was thanked for their efforts, and financial support generously provided by the CNSC was also acknowledged. In total there were 55 attendees, and medical physicists from 7 of the 10 Quebec radiotherapy centres and the Montreal Heart Institute were represented. Approximately 1/3 of the audience were medical physics graduate students.

Michael Evans
McGill University Health Centre

Sitting in front (left to right) are Jacinthe Plante and Kavita Murthy (CNSC), Lysanne Normandeau (CHUM - Montreal) and Mario Chretien (CHUQ - Quebec City). Standing to the right is Luc Beaulieu (CHUQ - Quebec City and President of the AQPMC)

Major Expansions at the Ottawa Hospital Cancer Centre

Submitted by: Miller MacPherson
Ottawa Hospital Cancer Centre, ON

The Ottawa Hospital Cancer Centre is about to undergo a major expansion in radiation therapy to meet the ongoing challenge of timely access to treatment.

The vanguard of this initiative will be the first "temporary" bunker installed at a Canadian cancer clinic.

The portable bunker features a modular design that allows it to be delivered by truck and assembled on-site in as little as two weeks.

The announcement of this new facility was made this summer with much fanfare. Shortly thereafter, a truck delivered the portable structure shown in the above picture.

While we agree that the outward appearance is at first glance disappointing, we are assured that the interior of the structure is truly commodious.

We will update the community with more photos as the construction progresses. (Photo courtesy Don Lesway).

How to write good

Submitted by: Michael S. Patterson
Jurvaninski Cancer Centre and McMaster University, ON

The following helpful hints have been posted on my office door for so long that their origin is obscure.

Many graduate students have found them useful, so I thought a wider circulation might be justified.

1 Always avoid alliteration.
2 Prepositions are not words to end sentences with.
3 Avoid clichés like the plague. (They're old hat.)
4 Employ the vernacular.
5 Eschew ampersands & abbreviations, etc.
6 Parenthetical remarks (however relevant) are unnecessary.
7 It is wrong to ever split an infinitive.
8 Contractions aren't necessary.
9 Foreign words and phrases are not apropos.
10 One should never generalize.
11 Eliminate quotations. As Ralph Waldo Emerson once said, "I hate quotations. Tell me what you know."
12 Comparisons are as bad as clichés.
13 Don't be redundant; don't use more words than necessary; it's highly superfluous.
14 Profanity sucks.
15 Be more or less specific.
16 Understatement is always best.
17 Exaggeration is a billion times worse than understatement.
18 One word sentences? Eliminate!
19 Analogies in writing are like feathers on a snake.
20 The passive voice is to be avoided.
21 Go around the barn at high noon to avoid colloquialisms.
22 Even if a mixed metaphor sings, it should be derailed.
23 Who needs rhetorical questions?

(Continued from page 150)

i) Review the professional activity of the candidate,

ii) Become thoroughly familiar with the professional quality of the candidate's work,

iii) Provide input and guidance to the candidate on professional activities,

iv) Determine the candidate's capability of working independently in the field of Radiation Oncology Physics,

v) Be willing to provide, if requested, a statement to the CCPM attesting to the above (E.02 (08) i) through iv)) and to certify that, at the end of the prescribed training period, the candidate is capable of working independently in the field of Radiation Oncology Physics.

Bylaw Change #3: Current By-law:

ARTICLE VIII: ENACTMENT, REPEAL AND AMENDMENT OF BYLAWS

(3) The Secretary/Treasure shall submit any such proposals to all Members and Fellows in writing by mail, at least two months before the Annual General Meeting at which they are to be considered, and shall place discussion of these proposals on the agenda of the meeting.

Bylaw Change #3 : Change to:

ARTICLE VIII: ENACTMENT, REPEAL AND AMENDMENT OF BYLAWS

(3) The Secretary/Treasure**r** shall submit any such proposals to all Members and Fellows in writing by mail **or by electronic means**, at least two months before the Annual General Meeting at which they are to be considered, and shall place discussion of these proposals on the agenda of the meeting.

Comment on Bylaw change #3

A typo in the spelling of treasurer is corrected. The possibility of communicating by mail or electronic means is added.The Board of the CCPM invites comments on these bylaw changes.

As per current bylaws (Article VIII), these proposed changes are being sent to all Members and Fellows at least two months prior to the 2008 Annual General Meeting to be held in Quebec City in June 2008.

Physics Therapy Electronics Fabrication

WESCAN 2008

The Leading Edge

March 12-14, 2008

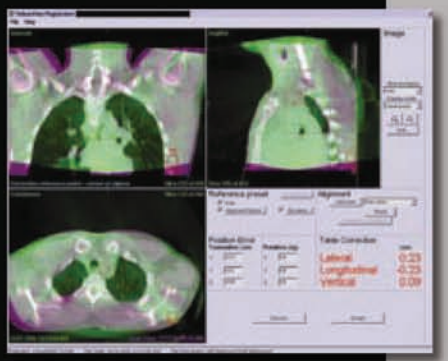
Plaza 500 Hotel & Convention Centre
Vancouver, BC

Symposium
Presentations
Posters
Student Competition
Tour of Vancouver Cancer Centre
Whistler Ski Trip - March 15

Early Registration Deadline January 18, 2008

for more details visit
www.wescan.org

Lead...Don't Follow.



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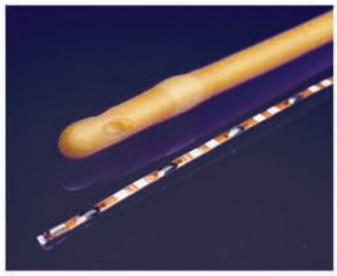

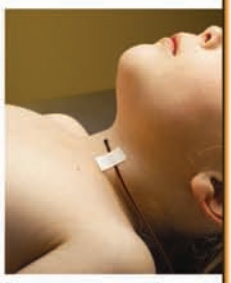

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