

# THE WORLD YEAR OF PHYSICS IN CANADA

by Michael O. Steinitz, PPhys

The WYP2005 has come to an end and the CAP can be very proud of the results of all of our efforts. It is our happy feeling that we got a large and significant bang for our bucks and reached a large part of the public that was our intended target audience. It is now appropriate to take a look back and see what we accomplished.

## INTERNATIONAL BACKGROUND

Lengthy discussions and preparations in Europe culminated in the first WYP2005 Preparatory Conference in Graz in July 2003. A prime motivation was the opportunity to reach out to the public by celebrating the 100th anniversary of Einstein's big year of 1905, in which his papers on the Photoelectric Effect, Brownian Motion, and Special Relativity were published. A big encouragement was the success of the German Year of Physics in 2000, which saw a major increase in undergraduate enrollments as a result of a massive public relations effort.

In Germany, for instance, "the Einstein Year" was "a collaborative initiative of the German Federal Government, science, business and culture". It was furthered by a budget of 13 million Euros from the German Government and an additional 1.25 million Euros from the Foundation for Culture. This gives us an idea of the scale of the observances in other countries.

On June 10th, 2004, thanks to the efforts of CAP member, Lebohang Moleko, PPhys, then the UN ambassador from Lesotho, the General Assembly of the United Nations declared 2005 to be the "International Year of Physics."

## CANADIAN BACKGROUND

Early Canadian planning took place at the joint APS/CAP March 2004 meeting in Montreal, where a committee was formed (Table 1). It was decided that a major lecture tour, a website, and encouragement of local events would be our major thrusts with a big event planned for the 2005 CAP Congress in Vancouver. Fundraising was an important issue. At this meeting many were able to hear a talk by Clifford Will which persuaded them that he was a lecturer who could help us fulfill our mandate of reaching the public with our message of the importance of physics and of the importance of Einstein's legacy in everyday life.

The committee met again at the 2004 CAP Congress in Winnipeg, where plans were debated and a steering committee was established, consisting of Michael Steinitz as chair,

Mike Morrow, the CAP president at that time, Walter Davidson, the CAP Vice-President at that time, and our Executive Director, Francine Ford.

Financial support was found in generous donations from the Perimeter Institute for Theoretical Physics, the Natural Sciences and Engineering Research Council (NSERC), the National Research Council of Canada (NRC), the Canadian Light Source (CLS), Atomic Energy of Canada Limited (AECL), the Canadian Space Agency (CSA), Science North, and many of the Canadian university physics departments. The Canada Science and Technology Museum was also a significant partner in the WYP activities. The CAP participated in the opening of several MegaScience exhibits which were installed in the Museum as part of the International Year of Physics celebrations. These included exhibits on the Sudbury Neutrino Observatory (SNO), the Zero-Energy Experimental Pile (ZEEP), the Tokamak de Varennes, the Dominion Observatory of Canada, and displays honouring Canada's physics-related nobel laureates.

A key to the success of the Canadian WYP2005 celebrations was the partnership developed between the CAP and the

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**TABLE 1**

### Members of the Canadian WYP Committee

Michael Steinitz, PPhys, St. Francis Xavier Univ. (Chair)  
 Mike Morrow, PPhys, Memorial Univ. of Newfoundland  
 Walter Davidson, PPhys, National Research Council  
 Francine Ford, Canadian Association of Physicists  
 David Lockwood, PPhys, National Research Council  
 Robert Hawkes, Mount Allison University  
 Joanne O'Meara, University of Guelph  
 Marcello Pavan, TRIUMF  
 Brian Turrell, Univ. of British Columbia  
 Tom Tiedje, Univ. of British Columbia  
 Diana Hall, Bell High School, Ottawa  
 Alastair McIvor, NRC Chalk River  
 Randall Brooks, Canada Science and Technology Museum  
 Richard Epp, Perimeter Institute  
 Robert Lamontagne, Univ. de Montréal

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Perimeter Institute. It was a major contribution from the PI that enabled us to undertake the cross-Canada lecture tour by Clifford Will and it was the expertise of the PI in outreach and event organization that gave us a great head-start in organizing the details of the tour, from publicity to posters to parking.

### MAIN EVENT

We engaged Clifford Will, of Washington University in St. Louis, Missouri, to give the Herzberg Lecture at the CAP Congress in June 2005, and also to do a tour of Canada in the Fall of 2005, giving his popular lecture, entitled, "Was Einstein Right?" At that time we also made a big jump by deciding to cross the cultural divide between the arts and the sciences by commissioning the composition of a string quartet as part of our celebration of WYP2005. The commission was given to Aaron Hryciw, a star pupil of one of Canada's leading composers, Malcolm Forsyth. Aaron suited us particularly well, as he is also a candidate for a PhD in physics at the University of Alberta. We engaged the best string quartet in Canada, the Borealis String Quartet, to premiere the work before the Herzberg Lecture at the Chan Centre for the Performing Arts at UBC at the opening of the 2005 CAP Congress. The evening's program that was handed out to the approximately 800 attendees (~ 50% physicists and 50% general public) was particularly attractive, featuring an original painting made for the event by Nicole MacDonald, also a physics graduate student at the University of Alberta and an honours physics graduate of St. Francis Xavier University. The combination of the string quartet and the "Was Einstein Right?" lecture by Clifford Will was such a success that, overcome by megalomania, we determined to put the Borealis Quartet on tour with Clifford Will, if at all possible.

From October 5th to November 19th Clifford Will gave his lecture to full houses at 22 sites across Canada, along with a performance of our quartet by the Borealis Quartet at 9 of these. The kick-off of the Fall lecture tour took place on October 5th at the Perimeter Institute in Waterloo, Ontario.

### OTHER CAP-LED WYP INITIATIVES

The regular CAP lecture tour in early 2005 emphasized talks about Brownian Motion and the Photoelectric Effect, as Relativity was to be covered by Cliff Will. University physics departments were encouraged to fill in the last of the three 1905 topics with lectures by their own members.

Demonstration kits showing the slowing of the motion of magnets on conducting surfaces by eddy-currents were distributed to university physics departments in the hope of stimulating them to take them to local high schools along with superconducting levitation demonstrations as part of the WYP2005 observations.

A 2005 calendar and a wall poster, both featuring images of distinguished Canadian physicists, were prepared and widely distributed, including every Canadian high school.

A CAP WYP2005 website was prepared and maintained by Alastair McIvor of NRC Chalk River and the CAP office staff.

A three-member delegation from the CAP and its Committee to Encourage Women in Physics, consisting of Janis McKenna, Adriana Prednoi-Cross and Michael Steinitz, attended the IUPAP WYP2005 meeting in Rio de Janeiro on Women in Physics. They felt that they were able to contribute significantly to the meeting and came back with many useful insights gained there from physicists from around the world.

CAP delegates also attended WYP events in Berlin, Paris, Washington, Bern, and Durban.

### ACTIVITIES ORGANIZED BY OTHER WYP COMMITTEE MEMBERS

"Einstein: A Stage Portrait" was performed twice in Ottawa (organized by Diana Hall from Bell High School in Ottawa) and twice in Sudbury (organized by Laurentian University).

The Perimeter Institute organized a month-long EinsteinFest which explored the changing world at the turn of the century - paying homage to Einstein's prolific output of 1905 through exhibitions, performances, physics lectures, music, visual art, politics, history, philosophy, psychology, literature and science and technology, exploring the rich culture, notable discoveries and brilliant minds of this amazing period. It took place Sept. 30 to Oct. 23, 2005 at the Perimeter Institute for Theoretical Physics in Waterloo, Ontario and reached over 25,000 visitors.

The Canada Science and Technology Museum's IYP program included exhibits on the Sudbury Neutrino Observatory, the Nobel Prize apparatus of Bert Brockhouse, the 100th Anniversary of the Dominion Observatory, and the ZEEP non-critical nuclear reactor and the Tokamak fusion reactor, with both of the actual reactors on display!

CBC Radio presented a program on Einstein by Dan Falk as one of its "Ideas" broadcasts. The documentary, "Einstein's Cosmos", is essentially a tour through Einstein's universe - what he discovered, and why it still matters, one hundred years later. Marcello Pavan at TRIUMF helped to make this happen.

Universities and laboratories across the country made major contributions to the WYP commemorations, with lectures, workshops, demonstrations, etc. Events organized by TRIUMF, Dalhousie University and Memorial University were particularly successful and these and other events will be highlighted in future articles in *Physics in Canada*.

The members of the steering committee wish to thank all the members of the committee and all the people and institutions that cooperated to make our World Year of Physics observations such a great success. Any omissions are inadvertent and are apologized for in advance.

**The WYP Committee invites other groups who organized events to submit summaries of their initiatives to the CAP office ([cap@physics.uottawa.ca](mailto:cap@physics.uottawa.ca)) for posting on the WYP website, and for possible publication in a future issue of *Physics in Canada*. Deadline: 2006 February 28.**