



CANADIAN CHEMISTRY AND PHYSICS OLYMPIADS

2007/08 NEWSLETTER

www.ccpo-occp.ca

An Invitation

Founded in 1985, the Canadian Chemistry and Physics Olympiads (CCPO) seeks to foster a wider appreciation of chemistry and physics as careers for talented young Canadian students at the pre-university level, as well as to promote strong educational standards in both disciplines. To this end, Canada has joined the group of some 85 countries where gifted students are identified and prepared to compete in the International Chemistry and Physics Olympiads.

The Canadian Olympiads have grown rapidly in scope and reputation. Over one hundred medals, including eleven gold and twenty-four silver, have been won by our delegations at these International Olympiads.

We are also proud of the large number of students we have attracted to our chemistry and physics regional preparation programmes and exams. This newsletter provides information about these and about our major event each year, the National Finals, where the two teams that will represent Canada at the International Olympiads are selected. A unique opportunity to travel and meet fellow students from a wide background but similar interests, competing in the Finals or an International Olympiad is a tremendous experience.

The involvement of science teachers across the country is vital to the CCPO's work, as they are best placed to identify and encourage promising students. We urge the heads of science departments to make this newsletter available to science teachers and students in their school so that they can get in touch with our organizers and exam coordinators.

We thank all the institutions and corporations listed below who recognise the value and relevance of our mandate with their generous support. Almost all schools whose students competed in the 2007 Finals also made a small but valuable financial contribution to help us defray the considerable costs of their students' experience. They are listed on our web site. In partnership with our dedicated group of volunteers, these sponsors and donors have made it all possible.

The Canadian Chemistry and Physics Olympiads' Board of Directors held a meeting on November 1st, 2007, where they accepted the resignation of Dr. Stanislaw Skonieczny and elected Dr. Scott Browning as the new National Director and Secretary-Treasurer of the CCPO. Dr. Browning has worked in different capacities in the Ontario Chemistry Olympiad for more than 10 years and is looking forward to the opportunity to serve the organization in his new role.

Regional Programs

1. Western Physics Olympiad

(www.physics.ubc.ca/outreach/ipho)

During the school year, a committee based at the University of British Columbia or the University of Alberta provides participating high-school students, mainly from British Columbia and Alberta, with sets of interesting physics problems posted on the Internet. Many of these go beyond the high school curriculum. In March, an invitational exam is posted and students submit their responses by mail or fax. About 15 are invited to the Western Physics Olympiad Camp for a weekend of training and selection.

Contact: **Prof. C. Waltham**, Western Physics Olympiad Programme, Dept. of Physics, University of British Columbia, BC V6T 1Z1. E-mail: cew@phas.ubc.ca.

Contact: **Prof. A. Kotlicki**, Same department address as above. E-mail: kotlicki@physics.ubc.ca.

2. Ontario Physics Olympiad Program at Toronto

(www.physics.toronto.ca/~poptor/)

The Department of Physics at the University of Toronto runs a nine-month preparation programme for high-school students in Ontario. Known as POPTOR, it helps students to prepare for the national competitions and provides them with an excellent opportunity to broaden their exposure to physics. The first stage consists of six graded problem sets posted on the Internet during the year. The 20 top students are invited, all expenses paid, to a training and selection weekend at the University of Toronto in mid-May.

Contact: **Dr. N. Krasnopolskaia**, Physics Olympiad Programme, Dept. of Physics, University of Toronto, 60 St. George St., Toronto, ON M5S 1A7.

E-mail: poptor@physics.toronto.ca.

3. Canadian Chemistry Olympiad

(www.chem.toronto.ca/ICHO.Ontario)

Via the Internet, the Department of Chemistry at the University of Toronto offers the Chemistry Olympiad preparation program to all high-school students across the country. Some 20 students are then invited to the training and selection weekend at the University of Toronto, held at the same time as the POPTOR weekend in mid-May.

Contact: **Dr. D. Stone**, Chemistry Olympiad Program, Department of Chemistry, University of Toronto, 80 St. George St., Toronto, ON M5S 3H6.

E-mail: provolym@chem.toronto.ca

Sponsors: University of Toronto, University of British Columbia The Natural Sciences and Engineering Research Council, Merck Frosst Canada, The Perimeter Institute for Theoretical Physics, AstraZeneca R&D, Imperial Oil Foundation.

Supported by: Boehringer Ingelheim (Canada) Ltd., Dow Chemical, McLean Foundation, Recochem Inc., John Wiley & Sons Canada, Thomson Nelson, Chemical Institute of Canada, Champlain/Lennoxville Regional College, Ontario Ministry of Education.

Selection Examinations in 2007

Pre-university students of any age may participate. While senior students will generally be more successful, more junior students are welcome to compete and gain valuable experience. To be eligible for the National Olympiad Finals (see below), students must write one of the following examinations:

1. The Canadian Association of Physicists (CAP) High School Prize Examination

The CAP exam is prepared in cooperation with the Canadian Physics Olympiad program. One of its purposes is to select students for invitation to the National Physics Olympiad Finals. All high schools and CEGEPs in Canada are notified of this exam by the CAP in the spring of each year. The exam is fully bilingual and is held in April of each year.

More information on the CAP Exam can be found at www.cap.ca/edu/hsprzex.html. In particular, a list of provincial Exam Coordinators and their e-mail addresses is provided. Interested schools (and students) should contact these individuals if they have not received from the Coordinators an invitation to participate in the CAP exam by mid-March.

Previous exams and their solutions are posted at: www.physics.ubc.ca/outreach/CAPexams/cap_home.htm.

2. The Chemical Institute of Canada's National High School Chemistry Examination

The CIC and the Chemistry Olympiad coordinate their efforts to create the Canadian Chemistry Contest (CCC) exam, the principal selection mechanism for the National Chemistry Olympiad Finals. The format of the exam allows students to vie for CIC prize standing and/or compete for the Olympiad program. All high schools and CEGEPs in Canada are notified of the exam by the CIC in the spring of each year. Only CEGEP 1 students will be eligible for CIC prizes but all CEGEP students can compete for selection to the National Chemistry Olympiad Final on the basis of this examination. This fully bilingual examination will be held next on April 22, 2008.

For more information, as well as for copies of previous exams, please visit the following website: www.cheminst.ca/2/7/6/2/index1.shtml

The site also has a list of regional coordinators for the Exam.

National Olympiad Finals (NOF)

In 2007, some 2100 high school and CEGEP students from across the country participated in the preliminary selection rounds of the Canadian Olympiads. Eligible students must be under 20 years of age at the time of the International Olympiads that immediately follow the NOF. They must be in full-time attendance at a Canadian high school or CEGEP, and be either Canadian citizens, permanent residents or have studied at a Canadian school for at least two years. Note that the Chemistry and Physics Olympiads are separate competitions and students are advised to focus their efforts on only one.

On the basis of the results of the CAP Prize Exam and of the Physics Olympiad Selection Exam written at the Western and Toronto physics training weekends, and in consultation with

the heads of the training programs, 14 physics students were invited to the week-long National Olympiad Final (NOF) camp. In a similar process based upon the results of the CIC exam and the Ontario Chemistry Olympiad program, the CCPO Chemistry Committee identified the top 14 chemistry students who were also invited to the NOF. This year, the National Olympiad Finals were held at the Université Laval in Quebec City from June 3 to June 10, 2007. The CCPO arranged and paid for travel and room-and-board; sponsors (publishers Wiley Canada and Thomson Nelson) supplied complimentary textbook material for all participants. We gratefully acknowledge the support and hospitality of Université Laval and warmly thank all the academic, clerical, technical staff and volunteers who cheerfully contributed time and energy to make this event a great success.

The CCPO Director, the Academic Committees, and the local organizing committee jointly set up for the NOF a rigorous, intensive program of lectures, laboratories and exams aimed at identifying the top students and filling any gap that may still exist in their knowledge of the International Olympiad curriculum. All activities take place in a fully bilingual setting. A social evening—usually a banquet offered by the CCPO—provides welcome relief from the demanding schedule. The week culminates with the naming of the students who have been selected to represent Canada on the four-person chemistry team and five-person physics team at their respective International Olympiads that summer.

In 2008 the NOF will take place in early June at the University of Toronto.

Other Regional and National Representatives

Physics students may contact:

– Quebec: **Prof. F. Buchinger**, Dept. of Physics, McGill University, 3600 University St., Montreal, QC H3A 2T8. E-mail: buchinger@physics.mcgill.ca.

Chemistry students may contact:

– British Columbia, Alberta, Yukon or Northwest Territories: **Prof. G. Bates**, Dept. of Chemistry, University of British Columbia, 2036 Main Mall, Vancouver, BC V6T 1Z1. E-mail: flip@chem.ubc.ca;

– Manitoba and Saskatchewan: **Prof. G. Hickling**, Dept. of Chemistry, University of Manitoba, Winnipeg, MB R3T 2N2. E-mail: hckling@cc.umanitoba.ca;

– Quebec, New Brunswick, Nova Scotia, Prince Edward Island and Newfoundland: **Ms. C. Filteau**, Chemistry Olympiad Program, Champlain Regional College, Lennoxville, QC J1M 2A1.

Information is also available from the National Director:

Dr. S. Browning, Canadian Chemistry and Physics Olympiads, Department of Chemistry, University of Toronto, 80 St. George St., Toronto, ON M5S 3H6.
Tel: 416 946 7380. Fax: 416 978 1631.
E-mail: olympiad@chem.utoronto.ca.

Our web site is:

www.ccpo-occp.ca.

International Olympiads

Held every year since 1967, the International Chemistry and Physics Olympiads now attract over 80 countries. The goal of these competitions is the encouragement of excellence in science education; they are the most prestigious of their kind for students at the high school or CEGEP level.

All participating countries commit enormous amounts of time, energy and money to preparing their most talented students for these high-calibre competitions which test both theoretical knowledge and laboratory skills.

The CCPO makes travel arrangements (excluding passports/visas) to the sites of the two International Olympiads. The teams usually leave a few days before the start of the Olympiads to adapt to local culture, climate, time zone, etc.

The costs for each team as a result of activities connected to the Olympiads, from the day of departure until the day of return, are borne by the Organizing Committees: the host countries pay for organization, food, accommodation and excursions, plus prizes. The CCPO covers transportation costs to the Olympiad venues for the students and team leaders.

More information about the regulations and statutes of the International Olympiads may be found at:

Physics: www.jyu.fi/tdk/kastdk/olympiads/
Chemistry: www.icho.sk/index_regulations.html

In 2008, the 40th International Chemistry Olympiad will be held in Budapest, Hungary from July 12 to 20. The 39th International Physics Olympiad will take place in Hanoi, Vietnam from July 20 to 29.

The 2007 International Chemistry Olympiad

The 39th International Chemistry Olympiad (IChO) was held in Moscow, Russia from July 15 to 24, 2007. A total of 68 countries participated in the competition.

The delegation selected at the NOF this year to represent Canada at the 39th International Chemistry Olympiad consisted of:

Gordon (Hyeon Jin) Bae	University of Toronto Schools, ON
Shervin Ghafouri-Tabrizi	Western Canada High School, AB
John Janetzko, John	Martingrove Collegiate Institute, ON
Dan (Donna) Peng	Marianopolis College, QC

Before leaving for Moscow, the chosen four were invited to the University of Toronto's Department of Chemistry to prepare for the international competition. The preparation consisted of extended practical examinations (laboratories), laboratory techniques training sessions, and workshops covering the different areas of chemistry to be tested at the international Olympiad.

Our Russian hosts clearly showed that the organization of the Olympiad and the training of their impressive team was a matter of national pride. The opening ceremony was spectacular as each team of students appeared presenting their national flag in front of the beautiful library of Moscow State University. After the tasting of traditional bread and salt, the members of the international organizing committee, the leader of Moscow

State University and representatives of Russia's Department of Education and Research welcomed the students to the Olympiad and to Moscow, emphasizing how chemistry is one of the most important sciences in today's world. The Olympic fire was lit, the flag was raised and the Olympics were declared open with the release of 500 balloons into the Moscow sky.

The cultural program of this Olympiad included a number of excursions to points of interest in and around Moscow. These included trips to the Kremlin and the Moscow Zoo as well as a visit to Sergiyev Posad, a city of historic note northeast of Moscow. Other activities included a visit to the circus, a boat cruise, playing paintball, an adventure game and a little exposure to Moscow's nightlife. Of course, to everyone's delight, there were plenty of opportunities for the students to enjoy Russia's delicious cuisine throughout their stay.

The academic program was prepared by the Science Committee which was comprised mostly of faculty members from the chemistry department of Moscow State University. The covered topics were from all areas of chemistry with an emphasis on contemporary aspects of classic principles in analytical and physical chemistry.



The Canadian team at the 39th IChO, Moscow, Russia. Front row: Dan (Donna) Peng. Back row (l-r): John Janetzko, Dr. Andrew Dicks, Gordon Bae, Dr. Stanislaw Skonieczny, Shervin Ghafouri.

The Canadian team performed very well, winning one gold medal (Bae), the seventh gold medal in the history of Canadian participation at the IChO, and one bronze medal (Peng). For the second year in a row, the Canadian Team outperformed their American counterparts. A total of 31 gold medals, 56 silver medals, 71 bronze medals and 10 honourable mentions were awarded.

Congratulations to all of the students for representing their country so well at the International Olympiad.

The 2007 International Physics Olympiad

The 38th International Physics Olympiad (IPhO) was held in Isfahan, Iran from July 13th to 21st, 2007. A total of 73 countries participated in the competition.

The delegation selected at the NOF this year to represent Canada at the 38th International Physics Olympiad consisted of:

Fei, Lin	Don Mills Collegiate Institute, ON
Sukhdeo, Devanand	Champlain College, Lennoxville, QC
Wang, Yifan	Laura Secord Secondary School, ON
Zhang, Jingyuan (Linda)	Western Canada High School, AB
Zhu, Han (Tony)	Point Grey Secondary School, BC

Before leaving for Iran, the chosen five were invited to the University of Toronto's Department of Physics to prepare for the international competition. To help the students manage their time throughout the competition, they were involved in an intensive training program which consisted of lectures and exams. The lectures included problem solving sessions on advanced topics in physics. The preparatory exams were of a similar level of difficulty as the exams that were expected at the international competition.

The Olympiad was quite clearly an event of primary importance to the Iranian government and its educational authorities. The social program was not only interesting but very entertaining as well. Isfahan is located on the main north-south and east-west routes crossing Iran, and was once one of the largest cities in the world. It is famous for its Islamic architecture with many beautiful boulevards, covered bridges, palaces, mosques, and minarets.

Students went to the Isfahan bazaar which is one of the oldest and largest bazaars of the Middle East, dating back to the 10th century A.D. It is a labyrinth of domed streets into the old town, wandering through some 5 km of paths. Students visited a number of other places of cultural significance including the Shaking Minarets of Monar Jonban mosque. Shaking either minaret causes the other one to sway, which has always held a great fascination for Iranians and foreign visitors alike.

They also received a historical tour of Naghsh-e Jahan Square, one of the biggest city squares in the world and designated by UNESCO as a World Heritage Site. The tour was followed by a dinner reception hosted by the Governor-General of Isfahan Province. Students visited the Research Centres of the Isfahan University of Technology as well as the Royan Institute for Reproductive Biomedicine, Stem Cell Biology & Technology. Later in the week, there was the opportunity for a little stargazing in the night skies of Isfahan.

The academic portion of the competition was organized by faculty members from the University of Tehran, Isfahan

University of Technology, Sharif University of Technology and the Institute for Studies in Theoretical Physics and Mathematics.

The problems were interesting and well prepared. Marking by the academic committee was very thorough and fair, and in most cases, agreed closely with the marking of the leaders. The marking moderations (the process of establishing the final mark acceptable by both leaders and the local marking team) were performed in a collegial atmosphere with very few real controversies.



The Canadian team at the 38th IPhO in Iran. Front row (l-r): Yifan Wang, Jingyuan (Linda) Zhang. Middle row (l-r): Guillaume Chabot-Couture, Dr. Maher Abou-Guendia of the Canadian Embassy in Iran, Elham Farahani, Han (Tony) Zhu, Lin Fei. Back row: Devanand Sukhdeo.

The Canadian team had their best performance ever, winning two gold medals (Fei and Zhu), the sixth and seventh gold medals in the history of Canadian participation at the IPhO, two bronze medals (Wang and Zhang) and an honorary mention (Sukhdeo). Tony finished 3rd overall from among the over 300 participants while Lin's gold medal represents his second in two years! A total of 37 gold medals, 46 silver medals, 51 bronze medals and 81 honorary mentions were awarded.

Congratulations to all of the students for representing their country so well at the International Olympiad.

Canadian Olympiad Delegations

The following Canadian students have taken part in the International Olympiads in the previous six years. The complete history of Canada's results since the beginning of our participation is available on our web site:

(www.ccpo-occp.ca/english/history.htm)

Prizes awarded appear as:

M (Honourable Mention), B (Bronze Medal), S (Silver Medal), G (Gold Medal).

1. Chemistry

2007 Moscow, Russia

Gordon (Hyeon Jin) Bae	U. of Toronto Schools	ON	G
Shervin Ghafouri-Tabrizi	Western Canada HS	AB	
John Janetzko, John	Martingrove CI	ON	
Dan (Donna) Peng	Marianopolis College	QC	B

2006 Gyeongsan, South Korea

Guang Yi Lu	U. of Toronto Schools	ON	G
Kent Huynh	U. of Toronto Schools	ON	S
Tianyi Wang	U. of Toronto Schools	ON	S
Dmitry Pichugin	W.L. Mackenzie CI	ON	B

2005 Taipei, Taiwan

Adam Lerer	U. of Toronto Schools	ON	B
Joel Tousignant-Barnes	Western Canada HS	AB	B
Kuan-Chieh Tseng	Yale SS	BC	B
Diane Quan	Western Canada HS	AB	

2004 Kiel, Germany

Ye Tao	Marianopolis College	QC	G
Jeffrey Mo	Sen. Patrick Burns JH	AB	S
Mara Inniss	Dawson College	QC	B
Adam Lerer	U. of Toronto Schools	ON	B

2003 Athens, Greece

Eric Zimanyi	Marianopolis College	QC	G
Matthew Arnold	Western Canada HS	AB	S
Arjun Bharioke	Marc Garneau CI	ON	S
Jordan Winick	Northern SS	ON	B

2002 Groningen, Netherlands

Liang Hong	U. of Toronto Schools	ON	S
Patrick Kim	Vaughan SS	ON	S
Dustin Tseng	Yale SS	BC	S
Charles Yeung	Alpha SS	BC	B

2001 Mumbai, India

Arya Ghadimi	Lisgar CI	ON	B
Bryony Lau	Western Canada HS	AB	B
Gerald Li	Sir W. Churchill SS	BC	B
Eric Zhu	Woburn CI	ON	B

2. Physics

2007 Isfahan, Iran

Fei, Lin	Don Mills CI	ON	G
Sukhdeo, Devanand	Champlain College	QC	M
Wang, Yifan	Laura Secord SS	ON	B
Zhang, Jingyuan (Linda)	Western Canada HS	AB	B
Zhu, Han (Tony)	Point Grey SS	BC	G

2006 Singapore

Boris Braverman	Sir W. Churchill SS	BC	G
Lin Fei	Don Mills CI	ON	G
Patrick Kaifosh	U. of Toronto Schools	ON	B
Devin Trudeau	Dover Bay SS	BC	M
Lu Liu	Waterloo CI	ON	

2005 Salamanca, Spain

Ivan Dimitrov	Don Mills CI	ON	M
Michael McBreen	Collège F.-X. Garneau	QC	M
Brett Teeple	Western Canada HS	AB	M
Simon Viel	Champlain College	QC	M
Rongtao Dan	Point Grey SS	BC	

2004 Pohang, South Korea

A. Modir Shanechi	Don Mills CI	ON	G
Noémie Savard	Champlain College	QC	B
Yun Zhang	Sir W. Churchill SS	AB	B
Ali Reza Sharafat	Lisgar CI	ON	M
Tout Wang	Don Mills CI	ON	

2003 Taipei, Taiwan

J. Laflamme Janssen	Collège de St-Jérôme	QC	B
François Girardin	Champlain College	QC	B
Nan Yang	Birchmount Park CI	ON	M
A. Modir Shanechi	Don Mills CI	ON	S
R. Barrington Leigh	Old Scona	AB	S

2002 Bali, Indonesia

Henry Wong	St. Francis Xavier SS	ON	G
Andrew Wang	Earl Haig SS	ON	S
Jonathan Ruel	Collège F.-X. Garneau	QC	B
Garry Goldstein	W.L. Mackenzie CI	ON	M
Shannon Wang	Magee SS	BC	M

2001 Antalya, Turkey

Liviu Tancau	Don Mills CI	ON	S
Frédéric Dupuis	Western Canada SS	AB	B
Jesse McKeown	Champlain College	QC	B
Ian Leroux	Collège Brébeuf	QC	B
Isaac Li	Central Commerce	ON	

Future Sites

	2008	2009	2010
Chemistry	Hungary	England	Japan
Physics	Vietnam	Mexico	Croatia