



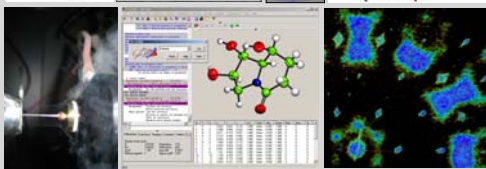
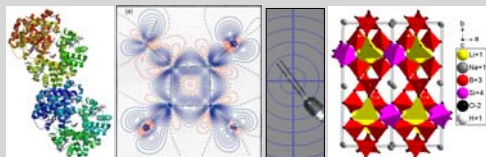
The Canadian National Committee for Crystallography (CNCC)

<http://www.canadiancrystallography.ca/>



Crystallography

Primarily via laboratory X-ray diffraction, but also synchrotron X-ray, neutron and electron diffraction, crystallographic methods provide a direct measure of the atomic arrangements of materials: from simple metals up to large protein complexes. This knowledge allows explanation of materials properties and performance. Normally, most university or industrial research departments involved in studying new materials would have at least one type of X-ray diffraction system for crystallographic studies.



Crystallography and Nobel Prizes

- The field of crystallography has been the basis of a variety of Nobel prizes, including:
- 1914 Physics: M.Von Laue - Diffraction of X-rays by crystals
 - 1915 Physics: W.H.Bragg & W.L.Bragg - Use of X-rays to determine crystal structure
 - 1937 Physics: C.J.Davison & G.Thompson - Diffraction of electrons by crystals
 - 1954 Chemistry: L.C.Pauling - for his research into the nature of the chemical bond
 - 1962 Physiology or Medicine: F.Crick, J.Watson & M.Wilkins - The structure of DNA
 - 1962 Chemistry: J.C.Kendrew & M.Perutz - studies of the structures of globular proteins
 - 1964 Chemistry: D.Hodgkin - Structure of biochemical substances including Vitamin B12
 - 1985 Chemistry: H.Hauptmann & J.Karle - development of direct methods for the determination of crystal structures
 - 1988 Chemistry: J.Deisenhofer, R.Huber & H.Michel - for the determination of the three-dimensional structure of a photosynthetic reaction centre
 - 1994 Physics: C.Shull & N.Brockhouse - Neutron scattering and diffraction
 - 1997 Chemistry: P.D.Boyer, J.E.Walker & J.C.Skou - elucidation of the enzymatic mechanism underlying the synthesis of adenosine triphosphate (ATP)
 - 2009 Chemistry: V. Ramakrishnan, A. Yonath and T. Steitz - 3D structure of the ribosome

Canadian National Crystallographic Facilities

Canadian and international researchers have access to national facilities such as the X-ray diffraction synchrotron beamlines at the Canadian Light Source (CLS) in Saskatoon, Saskatchewan (<http://www.lightsource.ca/>) and NRCC neutron scattering and diffraction beamlines at the NRU nuclear reactor in Chalk River, Ontario (<http://www.cins.ca/>). [below left: the CLS's CMCFS (Canadian Macromolecular Crystallography Facilities); below right: the C2 neutron powder diffractometer, Chalk River.]



The International Union of Crystallography (IUCr)

The IUCr (<http://www.iucr.org>) was formed in 1947 as a member of the International Council of Scientific Unions (ICSU). The IUCr's objectives are to promote international cooperation in crystallography and to contribute to all aspects of crystallography, to promote international publication of crystallographic research, to facilitate standardization of methods, units, nomenclatures and symbols, and to form a focus for the relations of crystallography to other sciences.

The IUCr fulfils these objectives by publishing in print and electronically primary scientific journals through Crystallography Journals Online, the series of reference volumes International Tables for Crystallography, distributing the quarterly IUCr Newsletter and maintaining the online World Directory/Database of Crystallographers.

Early history of the CNCC

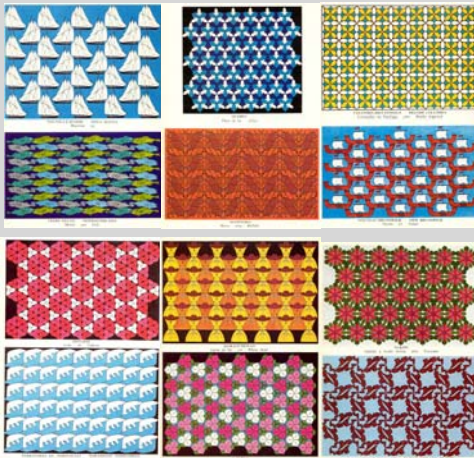


Canada was the third nation to join the IUCr where Dr William Howard Barnes (1903-1980) (pictured left) played a major role in persuading the National Research Council in 1948 to adhere to the IUCr for Canada. Dr Barnes was also chair of the Canadian National Committee for Crystallography from 1948 until 1966. (Acta Cryst, 1981, A37, 269.)

Via the CNCC, IUCr Congresses were held in Canada in Montréal (1957) and Ottawa (1981) with the next North American based IUCr congress to be held at the Palais des congrès de Montréal, Québec, 5th to 12th August, 2014.

Logo of the CNCC: "Feuille d'érable - p4g - Maple Leaf"

The CNCC logo (pictured top left of this poster) is based on a 1981 crystallographic artwork produced by François Brisse of the Département de chimie de l'Université de Montréal. This motif was originally used for the 1981 IUCr 12th Congress in Ottawa. It was the (unintended) financial profit from this 1981 Congress that laid the foundation for the Larry Calvert student travel fund. Other artwork of "La Symétrie Bidimensionnelle et le Canada", by François Brisse, Canadian Mineralogist, Vol. 19, pp. 217-224 (1981) is reproduced below.



Raison d'être and Charter of the CNCC

The Canadian National Committee for Crystallography (CNCC) is one of a number of Canadian National Committees (CNC's) whose functions are to represent Canada internationally within relevant international engineering, scientific and humanitarian organisations.

The CNCC's primary functions are:

1. To advise, and receive advisings and directives from the National Research Council of Canada (NRCC) on matters pertaining to Canadian participation in the International Union of Crystallography (IUCr).
2. To inform crystallographers in Canada concerning the activities of the IUCr.
3. To nominate persons to represent the crystallographers in Canada as delegates to the General Assemblies of the IUCr.
4. To provide information and guidance for such delegates
5. To plan and sponsor scientific meetings in Canada as is consistent with the objectives of the IUCr.
6. To perform such other duties as are required of national committees of adhering countries under the statutes of the IUCr.
7. To take any other action directed toward the benefit and advancement of the science of crystallography in Canada and throughout the world.

Larry Calvert CNCC/IUCr Trust Fund student travel awards



Bryan Taylor (left) with Lauriston (Larry) D. Calvert (1924 - 1993) from an NRCC Division of Chemistry 1977 publication

The Larry Calvert CNCC/IUCr Trust Fund offers travel awards for students presenting a poster or talk at the triennial IUCr congresses, as well as a poster award for the best Canadian student poster at the yearly American Crystallographic Association meetings that officially support the North and South American region.

The fund is named after Larry Calvert, the scientist responsible for much of the success of the 1981 Ottawa IUCr congress, which generated the financial surplus which is the basis for the awards.

People donating to the fund can, if they wish, specify the percentages of their donation to be split between the fund's principal, spent on triennial IUCr travel awards and the Canadian Crystallography Student Presentation Award for the best Canadian student poster at the yearly American Crystallographic Association meetings. However, actual amounts split between donations and growing the fund is subject to Canada Revenue Agency regulations.

A charitable receipt is issued for each donation and disbursements from the Larry Calvert Trust Fund are kept in line with the regulations of the Canada Revenue Agency for charitable organizations.



Larry D. Calvert graduation photo (1952)

Nominating CNCC Members and IUCr Commission Members

The method of nominating CNCC members is currently performed via submission to the Canadian Division (CanDiv) of the American Crystallographic Association (<http://www.cins.ca/aca/>) and is described at <http://www.canadiancrystallography.ca/nominating.html>. Nominated persons do not have to be members of the ACA. The emphasis is on obtaining members willing and able to serve as active committee participants.

As nominations for IUCr commissions are made by the adhering body to the IUCr, Canadian nominations must go through the CNCC and NRCC. Nominations can be communicated to the CNCC through CanDiv or to the CNCC directly. Again, the emphasis is on obtaining active and participating members. Refer: <http://www.canadiancrystallography.ca/cncc/nominating.html>



Contacting the CNCC

CNCC members / contacts at this meeting / conference:

Via the web at:
<http://www.canadiancrystallography.ca/>