

December 29, 2021

The Education and Workforce (E&WF) sub-committee of the USNC/Cr has prepared this executive summary of its report for the Fall 2021 USNC/Cr meeting on November 19, 2021, which is intended for publication on the website.

The sub-committee this year has been Joe Tanski (Chair, rotating off at the end of 2021), Branton Campbell (Chair, USNC/Cr), Nozomi Ando, Vic Young, Krystle McLaughlin, Nattamai Bhuvanesh and Joe Ferrara (Vice-Chair, USNC/Cr).

***Description:***

*The Education and Workforce subcommittee of the USNC/Cr is made up of members on the committee interested in promoting crystallographic education and training, broadly defined, with the goal of bolstering the pipeline of individuals trained in crystallographic techniques across the entire spectrum from those who desire to understand and/or employ structural science in their teaching or research to professional crystallographers. We consider education and training in all areas of structural science including but not limited to small and macromolecular crystallography, powder diffraction, micro ED, and NMR crystallography, as well as relevant mathematics, physics, computing, and software. The subcommittee keeps track of and reports on crystallography schools in North America, undertakes initiatives to bolster education and training such as organizing and participating in symposia and workshops at conferences, and when funding is available, helps manage support of outreach and educational activities in crystallography.*

***Current initiatives:***

Members of the Education and Workforce sub-committee along with others on the USNC/Cr have been organizing a workshop series on Crystallographic Database to be held virtually in March and April 2022. The latest workshop announcement may be found here:

[https://usnccryst.org/main/wp-content/uploads/2021/10/2nd\\_Workshop\\_Announcement\\_SB\\_JT.pdf](https://usnccryst.org/main/wp-content/uploads/2021/10/2nd_Workshop_Announcement_SB_JT.pdf)

A second current initiative is planning for a Young Observers program for the IUCr Congresses in Melbourne (2023) and Calgary (2026).

### ***Crystallography School Information:***

The sub-committee tracks US and Canadian crystallography school information. In the past two years, several schools have not occurred or have been virtual due to the Covid-19 pandemic.

- The 2020 ACA Summer School, May 31-June 7, was cancelled. 2021 also cancelled, however, planning for 2022 is ongoing.
- The Modern Methods in Rietveld Refinement for Structural Analysis did not appear to be scheduled in 2019-2021, last held June 17-22, 2018, at APS/ANL.
- RapiData 2021 at SSRL - Data Collection and Structure Solving: A Practical Course in Macromolecular X-Ray Diffraction Measurement, ONLINE May 5-15, 2021.
- CCP4/APS School in Macromolecular Crystallography: From data collection to structure refinement and beyond, was scheduled June 15-22, 2020, postponed, ONLINE June 14 - 25, 2021.
- CLS Mx Data Collection “Virtual Edition”, November 12-13, 2020, Canadian Light Source, Saskatoon.
- Cold Spring Harbor, X-ray Methods in Structural Biology, was October 15-30, 2019; cancelled in 2020, was not rescheduled in 2021.
- 23<sup>rd</sup> National School on Neutron and X-ray Scattering, APS/ORNL, held virtually July 12-30, 2021.
- 11<sup>th</sup> Canadian Chemical Crystallography Workshop (CCCW20), University of Winnipeg, May 19-22, 2020, was cancelled in-person and converted to a virtual event. 12<sup>th</sup> Canadian Chemical Crystallography Workshop (CCCW21) was a virtual event, 8 – 11 August 2021
- 70<sup>th</sup> Annual Denver X-ray Conference held as a Virtual Event from 2-6 August 2021. 71<sup>st</sup> scheduled for August 1-5, 2022 in Maryland.

In addition, the CCDC is also trying to keep track of crystallography conferences/events, including international ones like ECM, and related meetings such as the ACS national meetings that may have educational/workshop components:

<https://www.ccdc.cam.ac.uk/News/Events/>

For information on CryoEM related schools, a well-kept list was curated by EMDDataResource:

<https://www.emdataresource.org/>

***American Crystallographic Association:***

An education session was held during the vACA2021: 2.3.1 Open Exchanges in Crystallographic Education, chaired by Andrew Torelli & Kraig Wheeler.

Educational sessions are being planned for the in-person ACA2022 in Portland, OR:

- 3 min thesis (lunch session) - Dan Decato & Kristofer Gonzalez-DeWhitt
- What I Learned from My First Structures - Silvana Urcia-Romero & Larry Falvello
- Would You Publish This (evening session) - Jeffrey Bacon & Matthew Brown
- Open exchanges in crystallographic education - Kraig Wheeler
- Educating the new generation of users - Clyde Smith & Eddie Snell

***IUCr Prague 2021:***

Two educational sessions from the IUCr CCT for the cancelled 2020 Congress were held, 117 Social media and new frontiers for spreading crystallography, and 116 Crystallography schools to promote interdisciplinarity in science. A third special session was added for the 2021 hybrid meeting: SMS-6: Using crystallography for education during the pandemic, where USNC/Cr members Joe Tanski and Joe Ferrara contributed talks.