

Czech and Slovak Crystallographic Community

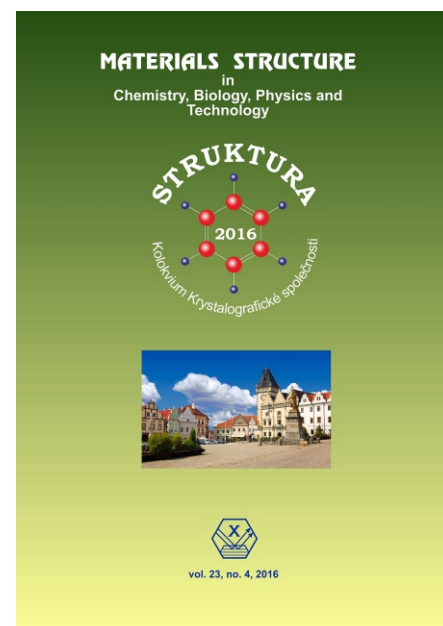
Czech and Slovak Crystallographic Association (CSCA)

Krystalografická společnost



www.xray.cz

Czechoslovakia was accepted by the IUCr immediately after the first Congress of the IUCr in Boston in 1948 as the fifth member together with USA, UK, Norway and Canada. The membership of the Czechoslovak National Committee in IUCr was guaranteed originally by the Charles University; later the role of guarantee was overtaken by the Academy of Sciences and in 2017 by the Czech and Slovak Crystallographic Association. A series of “*meeting of crystallographers on special topics in structure analysis*” was started by Prof. A. Kochanovská in 1954 in headquarters of the Academy of Sciences and a long series of these traditional one-day seminars was established. Originally, the meetings called “*Discussions*” were organized under the head of the Institute of Technical Physics of Academy of Sciences, later under the head of the Czechoslovak Society for Science and Technology and finally the CSCA. In 2016, the anniversary 300th Discussions Meeting on Recent Advances in Structure Analysis was organized in Prague.



The formal recognition of the **Crystallographic Association** as a stand-alone society was achieved on February 6, 1991. Logo of the association was designed by Z. Zikmund. Its variations are being used for logos of different meetings including the IUCr 2020.

The Executive Committee” headed by the president and secretary is responsible for activities to the Scientific Board. All bodies and officers are elected for three-year period.

The current Executive Committee involves Jindřich Hašek (Institute of Biotechnology, BIOCEV, Czech Academy of Sciences) and Radomír Kužel (Faculty of Mathematics and Physics, Charles University). Current vice-presidents are Zbynek Šourek (Institute of Physics of the Academy of Sciences) and Ivana Kutá Smatanová (Faculty of Science, University of South Bohemia). See www.xray.cz for full list members of scientific board.

The adhering body of the IUCr is the **Regional Committee of Czech and Slovak Crystallographers**. The committee with 8 members – 4 from the Czech Republic and 4 from Slovakia is headed by P. Mikulík (vice-chair is Marian Koman from the Slovak Technical University, Bratislava). The Committee closely collaborates with the CSCA scientific board.

A continuous series of **Annual CSCA Conferences** began in 1980. At these meetings people interested in crystallography can meet for four days and discuss informally all scientific problems and directions of future activities of the CSCA. The conference is devoted to the diffraction and non-diffraction techniques and methods for structural studies of compounds, applications of diffraction methods in practice, the use of techniques in materials science, physics, chemistry and biology. The meetings are organized in different places in Bohemia and Moravia. Besides general and broad crystallographic topics several focussed meetings were organized. In last years for example Experimental methods in X-ray and neutron analysis (Beskydy 2002, Telč 2017), Computational methods (Nove Hrady castle, 2003, Klatovy, 2012), Small-angle scattering (Blansko, 2013), non-diffraction techniques for structural studies (Tábor 2016). Conference on synchrotron radiation and neutron scattering in 2006 was abroad. Two buses with altogether 80 people were going to Grenoble two days with a stop and excursion at Villigen synchrotron in Switzerland. The meeting itself took place directly at ESRF and ILL. The second meeting on synchrotron radiation was organized in 2009 in Valtice castle, Southern Moravia and was connected to the CESLAB (Central European Synchrotron Laboratory) European project planned in Brno. Nowadays, the conference is named *Struktura* xxxx including the year.

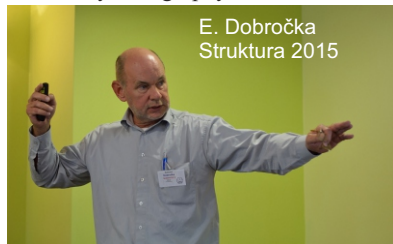


Some participants of *Struktura* 2017

Since 1999 as the first from the East and Middle European countries we participate regularly in European Synchrotron Radiation Facility (ESRF Grenoble), since 2008 as members of the consortium CENTRALSYNC, Scientific Associate of the ESRF. The Czech Republic also participates at ILL Grenoble and many Czech and Slovak scientists participate in other synchrotron and neutron facilities, in particular in Berlin, Hamburg, Trieste, Karlsruhe, Lund.

[youngcrystallographers](http://www.youngcrystallographers.org)

Biennial student symposium is organized as a part of the annual conference. The session contains student works – Bc., MSc. and Ph.D. theses in the field of crystallography, study of structures and microstructures mainly by X-ray and neutron techniques. Students from different universities in the Czech and Slovak republics take part at this meeting. The presentations are evaluated by a wide committee and finally the best students are awarded. The last symposium was organized in 2017 and the evaluation was divided in two sections - Physics and materials and Biocrystallography.



E. Dobročka
Struktura 2015

Students at
Struktura 2015



Iulia Iermak



Jakub Rozbořil



Cinthia Antunes Correa

In addition to general plenary lectures and other common contributions, sessions and highly-special courses are usually organized in parallel for bio-crystallographers (course of protein crystallography – general, preparation of measurements and data collection, macromolecular structure refinement, precision and reliability) and people more directed to powder diffraction and materials science (course of study of real structure of materials, phase analysis). Courses on software are organized as well (structure databases, program Jana, Maud etc.). In 2015, there was a course on the use of groups in crystallography. Usual participation at these annual meetings is 70-100 people.



Picture from Struktura 2015 organized in June in Luhačovice, Moravia.



P. Srb, Struktura 2016



R. Mokso, Struktura 2017

Important parts of the conference are also commercial presentations showing the latest development in instrumental techniques. In this connection, we appreciate support of a few traditional commercial participants – Panalytical, Bruker, MTM, Dectris, Rigaku, Nanomegas, Incoatec. In 2017, also Paar, Xenocs, Stoe and xplorex became CSCA corporate members.

Other crystallographic meetings



B. Schneider, conference chair

From the very beginning, the CSCA co-organizes meetings of structural biologists. The conference started in spring 2002 and continued each year in March. They are organized under the label **Discussions in Structural Molecular Biology** now and they have always been organized in the castle Nové Hradý, Southern Bohemia, in collaboration with the University of South Bohemia, České Budějovice. "Discussions" welcome contributions from all aspects of structural molecular biology including crystallography, NMR, electron microscopy, mass spectrometry, other advanced spectral techniques, bioinformatics, thermodynamics, and computer simulations. Participation in last years was more than 130 people. In 2010, the *Czech Society for Structural Biology* (CSSB) was founded there, which is now the main organizer of the meeting.

Since 2004 the **FEBS combined practical and lecture courses** and since 2014 **FEBS practical crystallization courses** supported by INSTRUCT named „Advanced methods in macromolecular crystallization“ are organized at the Academic and University Center (AUC) at Nové Hradý every second year. Typically, up to 20 outstanding lecturers/tutors have accepted organizer's invitation and thank to them, the high level of the courses is provided every time. Students mainly from Europe but also from Asia and America are attending the morning lecture sessions and afternoon laboratory exercises. Based on the positive responses from the feedback questionnaires and other responses, these crystallization courses are estimated as successful and very fruitful and organizers are going to continue in future.



J. Dohnálek, CSSB chair



Nové Hradý castle, the place of
Discussions and FEBS courses

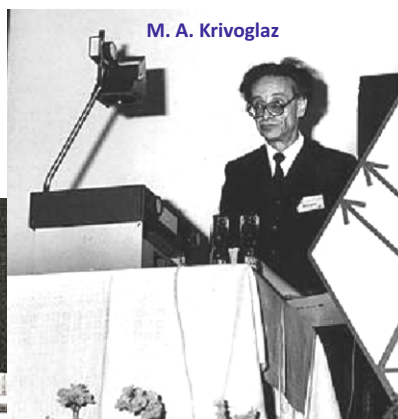
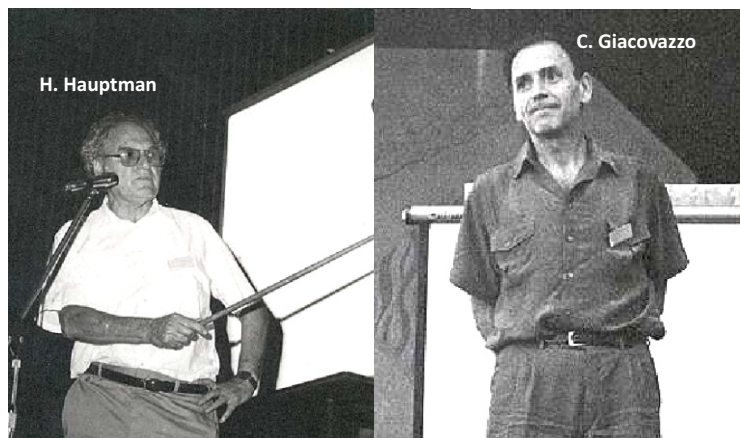
Heart of Europe bio-Crystallography Meetings take place in Germany, Poland and Czech Republic and are organized annually since 1998. Four of them were organized in the Czech Republic (Bedřichov, 2001, Karlovy Vary 2005, Třešť 2009, Kutná Hora 2015). The main Czech group involved was from the Institute of Molecular Genetics, Czech Academy of Sciences (Pavlna Řežáčová) and CSSB.



FEBS course, Nove Hradý, 2014.

International Conferences organized by the CSCA

AMEX I, II. The series of international crystallographic conferences organized by the Crystallographic Association started with “**Advanced Methods in X-ray Structure Analysis**” (J. Fiala, J. Hašek, R. Černý, V. Valvoda, Karlovy Vary in 1987) and the AMEX conference organized in Pyramida, Praha 1990 by V. Petříček, J. Fiala, V. Valvoda, R. Černý, R. Kužel, J. Hašek. Both conferences brought nearly 200 participants including several famous crystallographers to Czechoslovakia.



ECM-18.

The 18th European Crystallographic Meeting in August 16-20, 1998 took place in the buildings of the Czech Technical University in Prague. 1 059 participants came from 39 countries all over the world. The program consisted of 18 plenary lectures, and 240 lectures presented in 48 microsymbiosia organized in 6 parallel streams corresponding to 6 focus areas. The ECM was

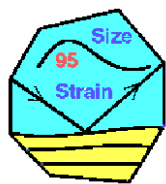
preceded by 5 workshops on symmetry of crystals, methods of crystal structure determination and use of databases. 558 contributions were presented in a poster form. 200 students were supported from different sources. The session to the 50th anniversary of the IUCr involving four plenary lectures on the history of IUCr and future perspectives of crystallography took place at the Prague's State Opera and was chaired by the president of the IUCr - Prof. Ted Baker. Cultural programme included concert to the 25th anniversary of the ECM in the National Museum, crystallographic exhibition Structure of the Microworld (for public opened three months after the conference); concert to the 650th anniversary of the Charles University in Prague; the Křižák's night colourful fountains with music performances, trips to different destinations around Prague and farewell party.

The Web pages www.xray.cz/ecm still contain nearly all the information, e.g. list of participants, complete conference programme, all the abstracts.

The post-conference book “Advances in Structure Analysis” with long reviewed selected papers was published by the CSCA and it is still available. The conference CD-ROM with useful software was published after the conference as well.



H. D. Flack



The idea of the **Size-Strain conferences** was introduced by the vice-president of the CSCA Prof. Jaroslav Fiala and should emphasize the role of the so-called real structure of materials and its characterization by X-ray diffraction. The first conference was organized by the CSCA in August 1995 in Liptovský Mikuláš, Slovakia (P. Šutta). It was followed by the book published in the IUCr Oxford series edited by R. Snyder, H.J. Bunge and J. Fiala: *Defect and Microstructure Analysis by Diffraction* (Oxford University Press, NY, 1999) and the tradition of the conference has been established. The next meetings were held in November 1998 in Freiberg,

Germany and in Trento (2001), Italy. This year already the 6th Size-Strain meeting is planned in France. The conferences are devoted to the problems of real structure of polycrystalline materials mainly but not only by diffraction methods. Usually more than 100 participants take part at this conference and this was true also in 2004 when the conference preceded the EPDIC-IX in Prague.



The **EPDIC IX** was organized in September 2004 and started with workshop organized by Lachlan M Cranswick on size-strain and phase analysis software. Traditional EPDIC scheme with six plenary lectures and two parallel sessions was applied. The posters were displayed during the whole conference as usual. Topics were: structure solution from powder diffraction - methods and application, stress, strain and texture analysis, neutron diffraction - instruments and applications, phase transitions, non-ambient conditions, phase analysis, structure and properties of bio-materials, nanocrystal-line materials, metals and alloys, minerals, thin films, techniques and instruments, indexing powder patterns and

software. The conference was opened with a welcome evening in the Prague Congress Center by the traditional EPDIC award lecture followed by music performance of the Z-band - mixed voice Prague children choir. On the last day of the conference, a special train trip to Pilsen was organized. Participants had a dinner directly in the famous Pilsen brewery and took part at the excursion there. More than 320 participants arrived from 36 countries of Europe, North and South America, Africa, Asia and Australia. About hundred six-pages papers were published in *Zeitschrift für Kristallographie* after the conference.





The **7th Biennial Conference on High Resolution X-Ray Diffraction and Imaging – XTOP 2004** - was held in Congress Centre in Průhonice, one of suburbs of Praha, from September 7–10, 2004. The conferences of these series provide a wide range of topics including theory of X-ray scattering, high-resolution, diffraction, reflection, grazing-incidence scattering, thin films and nanostructures, topography, imaging techniques and instrumentation. Professor Andrew Lang, a honorary guest, one of the pioneers of X-ray topography, who gave his name of the popular topographic technique, celebrated his 80th birthday. Reviewed papers were published in a special issue of *Journal of Physics D*. In total 147 official delegates and 8 accompanying persons from 16 countries of three continents attended this conference. Main organizers: Z. Šourek, V. Holý

13th Biennial Conference on High-Resolution X-Ray Diffraction and Imaging - XTOP 2016 took place in cinema Scala in Brno, Czech Republic, from 4th to 8th September 2016.



<http://xtop2016.sci.muni.cz/>, abstracts at <http://www.xray.cz/ms/bul2016-3.htm>. 140 participants from 22 countries. Traditionally, the conference started with the companion school with tutorial lectures covering principal and highlight topics of the current XTOP given by six invited speakers. 41 contributed talks of the conference was presented in 11 sessions each introduced by a keynote talk. 73 posters were divided into two sessions and a few poster prizes were awarded. Paolo Scardi received the ICCD Hanawalt award during the conference. The conference was supported by the IUCr and a special issue of *Journal of Applied Crystallography* with selected papers appeared in June 2017. Main organizers: P. Mikulík, V. Holý.



Aperiodic 2015 – International Conference on Aperiodic Crystals, Břevnov Monastery, Prague, 30 August – 4 September 2015. <http://crysa.fzu.cz/aperiodic2015/>, <http://www.xray.cz/ms/bul2015-4.htm>

The conference was attended by 134 delegates from 25 different countries, 22 young scientists were supported by the IUCr Aperiodic 2015 was organized under the auspices of the Commission on Aperiodic



Crystals of the IUCr. Five days of the conference covered classical modulated structures, quasicrystals and magnetic structures, symmetry aspects, mathematical aspects, tiling theory, high pressure crystallography, diffuse scattering, lattice dynamics, physical properties. A special session was organized in memory of Chris Henley, one of the pioneers of the quasicrystal science who passed away recently. Honorary lecture “Usefulness and unusefulness of the superspace approach to aperiodic crystals” was held by the 2014 Ewald prize winner Ted Janssen, followed by an excursion to “Canada, two Americas and Mexico” or to the famous Křivoklát castle, both located in countryside close to Prague. Main organizers: M. Dušek, V. Petříček, L. Palatinus



16th International Conference on the Crystallization of Biological Macromolecules (ICCBM16). The topics of the conference aimed to cover all aspects of biological crystallogenes from basic research on nucleation and crystal growth, to practical developments in crystallization methods and also advanced approaches. The conference was organized by the International Organization for Biological Crystallization IOBCr and CSCA. The program was organized in 14 non-parallel sessions focused on membrane protein crystallization, crystallization of macromolecular complexes, automation in crystallization, crystallization approaches for serial crystallography, chemistry of crystallization, complementary and scoring methods, teaching macromolecular crystallization, crystallization methods for neutron diffraction, theory and practice of crystallization and crystallization in industry and biomedicine. During the conference, Nobel Prize winner Prof. Ada Yonath from Weizmann Institute of Science (Rehovot, Israel) gave lecture *The Recent Resolution Revolution & Friendly Medicine*. After this public lecture there was also public concert of baroque music by *Ars Instrumentalis Pragensis*. 72 posters were displayed in two parts and five of them were awarded. During the course Juan Manuel García-Ruiz has also supervised the exhibition *CRISTALES* installed directly in the hotel foyer. Train trip to Pilsen brewery with an excursion and dinner there was organized similarly to EPDIC IX. 200 participants arrived from 32 countries all over the world. Abstracts can be found at <http://www.xray.cz/ms/bul2016-2.htm>. Main organizers: I. Kutá Smatanová, P. Maloy Řežáčová

www.iccbm16.org



train trip to Pilsen

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