

16th International Conference on Chemical Education
and
19th Conference of Hungarian Teachers in Chemistry
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The IUPAC CTC assign the organizer of the international conference every two years. In 1996 the Hungarian Chemical Society Section of Teachers in Chemistry submitted its detailed application and in 1998 was granted with organizing the 2000th annual conference.

The Conference was opened on 5th August under ideal circumstances in a building of Eötvös Loránd University (ELTE) situated on the bank of river Danube. This building simultaneously accommodated the Conference of Hungarian Teachers in Chemistry which takes place also in every second year. The closing ceremony of the six days running programme happened around noon on 10th August. The organizing office of ELTE continuously provided conditions meeting every requirement, technique and exemplary cleanness. The restaurant established at the place, the globular assembly hall for the receptions and the politeness of the staff- all represented Hungarian hospitality.

The most important organizers of the Conference were the Hungarian Chemical Society and its Section of Teachers in Chemistry. The Chemistry Department of ELTE and the General and Inorganic Chemistry Department of University of Veszprém supported the organization. English speaking students from ELTE ensured the smooth course of events. The helpful students group is worthy of public recognition for its work. The leader of the group was a Ph.D student, Viktor Mihucz, other members were Orsolya Kovács, Bence Tamássy and Tamás Váradí at the poster sessions, Krisztián Demmel and Tímea Szabó on the plenary lectures, Viktória Csengeri, Katalin Miskei, Friderika Himics, Anikó Rupert on the symposia, Júlia Dégi and Gábor Vizok on the keynote lectures, Viktor Mihucz, Virág Somogyi and Ilona Szamosújvári at the workshops. Students from University of Veszprém carried out the professional simultaneous interpretation and guidance in English language. With their excellent contribution the conference became profitable for the Hungarian teachers of Chemistry, too. The translation of Krisztina Vigh, who is a professional interpreter, was outstanding and the other members, Gertrúd B. Kiss and Zoltán Lendvai as well as the group leader Gergely Szintay also performed well. Furthermore, Balázs Srej and Bálint Szele guided a tour round Lake Balaton with expertise.

Due to our sponsoring institutions and firms we were able to organize the conference on a high level as it has been qualified in written indications by our partners for Germany to Japan. We would like to express our thanks the following patrons and supporters for their help: Zoltán Pokorni Minister of Education, Ferenc Ligetvári Minister of Environmental Protection, György Matolcsy Minister of Economy, Norbert Kroó Secretary General of Hungarian Academy of Sciences, Government Office for Hungarian Minorities Abroad, Foundation for the Technological Progress of the Industry, Hungarian Museum for Science and Technology, Hungarian Millennium

Commissioner Office, EGIS Pharmaceuticals Ltd., Richter Gedeon Ltd., Gy_r Distillery & Refinery CO Ltd., United Biscuits Hungary, Pannonplast Industrial Plc.

The world conference was supported with cooperation by these international organizations: IUPAC, UNESCO, FECS, ICASE. We were helped by the personal assistance of the International Advisory Committee (13 members), National Scientific Committee (16 members), and the Organizing Committee (14 members). The members of the Organizing Committee were charged with different concrete tasks either: Attila F_z_ with the technical and electronically equipments, Gábor Hornyánszky with the displays, Emma Jakab with the chairmanship. Mrs Csilla Csányi Kovács arranged the programmes in Hungarian language and the vocational training certificates. István Mártraí undertook chairmanship and helped with professional translations, Mrs Emília Horváth Nagy took part in registration, Miklós Riedel made the English language summary ready to print promoting the systematisation of the programme at the same time. Zoltán Tóth and Judit Wajand also undertook chairmanship, while Attila Villányi organized the poster session.

The opening ceremony was lead by Academician Alajos Kálmán, the president of Hungarian Chemical Society and the 16th ICCE. The Ministry of Education was represented by Academician Gábor Náray-Szabó who was the president of the Scientific Committee as well. The UNESCO was represented by Alex Pokrovsky, the IUPAC by Hans Bouma (The Netherlands), the IUPAC CTC by John Bradley (South-Africa), the FECS by Michael Gagan (UK), the Hungarian Academy of Sciences by Norbert Kroó Secretary General, and the host was Gyula Záráy the assistant dean of the Science Department of ELTE.

After the official greetings the “Csillagszem_” children dance group presented some pieces from Hungarian folk-dance. The lively and colourful show cheered the meeting up.

On the basis of the application forms we registered 554 persons from 53 countries.

The distribution of the participants is the following:

Hungary	247	USA	40	Japan	28	England	21
South-Africa	30	Finland	20	Sweden	15	Romania	13
Yugoslavia	13	Slovenia	10	Slovakia	10	Israel	9
Germany	9	Portugal	9	Australia	8	China	7
The Netherlands	6	Austria	5	Egypt	5	Canada	5
Russia	5	Belgium	4	Brazil	3	Spain	3
Switzerland	3	Thailand	3	Turkey	3	France	2
Greece	2	Croatia	2	Italy	2	Argentina	1
Chile	1	Cyprus	1	Czech Republic	1	Estonia	1
Philippines	1	Hawaii	1	Ireland	1	Columbia	1
Korea	1	Poland	1	Lebanon	1	Morocco	1
Norway	1	Puerto Rico	1	Saudi Arabia	1	New Zealand	1
Tunisia	1	Kenya	1	Luxembourg	1	Ghana	1
Ukraine	1						

The 7,039 % of the registered persons were not able to attend because of certain difficulties. The number of companions was 36 from the effective 515 participants, 271 from abroad and 208 Hungarian. 26 foreign chemistry teachers who teach in Hungarian language could take part in the programmes free of charge. Moreover, providing reductions solved some other financial problems.

The Conference was regarded an accredited course so the participants were given official certificates.

The plenary and keynote lectures were lead by the members of the National Scientific Committee: László Harsányi Secretary General of HCS, Ferencz Hudecz Academician, József Hlavay professor, Emma Jakab Hungarian Academy of Sciences scientist, Ferenc Kilár professor, László Markó Academician, István Mátrai secondary school teacher, Ern_ Pungor Academician, Csaba Szántay Academician, Imre Szabó professor, László Velkey secondary school headmaster.

Speakers of Keynote lectures:

Frederic Bettelheim (USA), A.F.M. Fahmy (Egypt), Erika, Fodor (Hungary), Pamela Garnett (Australia), Michael Schallies (Germany), Ben Selinger (Australia), Sándor, Papp (Hungary), Albert Pilot (The Netherlands), István, Pais (Hungary), Yoshito Takeuchi (Japan), Béla, Tóth (Hungary), Yu.D. Tretyakov (Russia), Uri Zoller (Israel).

The seminars were lead by the organizers: professor Hans-Jürgen Schmidt (Germany), prof. Dorothy Gabel (USA), prof. István Horváth (Hungary), prof. J.J. Lagowski (USA), prof. Christer Gruvberg (Sweden), prof. Zafra Lerman (USA), prof. Dori Yehudit (Israel), Erik Onkelinx (Belgium), Attila Sebestyén assistant Rector (Hungary), prof. Yoshito Takeuchi (Japan), Judit Wajand associate professor (Hungary) , prof. Pamela Garnett (Australia), Attila F_z_ secondary school teacher (Hungary), Jack Holbrook Secretary General of ICASE (Cyprus), prof. Péter Csermely (Hungary), prof. Anthony Smith (France), Csilla Csányi Kovács leading consultant (Hungary), prof. Maria Elisa Pestana (Portugal), prof. Ognian Serafimov (Germany), prof. Peter Towse (UK), prof. Loretta Jones (USA), István Mátrai secondary school teacher (Hungary), Katalin Harka leading consultant (Hungary), prof. de Jong Onno (The Netherlands), prof. Mary Virginia Orna (USA), prof. Michael Gagan (UK), prof. David Waddington (UK), prof. Miranda Stephenson (UK), prof. Tsung-Tsan Sun (Taiwan).

The six-day programme included the work of both the lecturers and the authors of the announced presentations. Each working day of the scientific meeting was started with plenary lectures then 5 or 6 symposia were running in simultaneous sessions. After lunch the programme was continued with two lectures and was finished with 9 parallel workshops which were carried out in different venues. The poster session was opened on 6th August in the afternoon and it was displayed during the whole conference. The professional work, lasted from 9am to 6pm, involved 6 plenary lectures, 14 keynote lectures, 120 symposia, and 18 workshops. The plenary and keynote lectures were translated into Hungarian by simultaneous interpreters.

All of the plenary lectures proved to be highly valuable such as *Science, A Round Peg in a Square World* by Nobel-laureate Harold Kroto, *The Ozone Hole: A Manmade Chemical Instability of the Atmosphere. What Should We Learn from It ?* by Nobel-laureate Paul Crutzen, the spectacular *Micro-scale Experiments with Gases* by Viktor Obendrauf, the *Teaching University Chemistry in the Context of Materials Science* by Miklós Zrínyi, *What Can We Learn from Research on Students' Misconceptions ?* by Hans-Jürgen Schmidt as well as *Environmental Sciences* by D.J. Miyamoto.

Two of the 14 keynote lectures were in Hungarian language on useful topics in education: *Cyanide Pollution of the River Tisza Through the Eye of a Chemist* by Sándor Papp and the *Nuclear technologies and the Environment* by Béla Tóth. The lecture of Professor István Pais is also remarkable and was considered a great honour to hear. The Professor founded the Conference of Hungarian Teachers in Chemistry within the Hungarian Chemical Society 38 years ago.

From the 120 symposia there were 15, from the 18 workshops there were 7 and from the 154 posters there were 28 in Hungarian language. Over the scheduled programmes an extra workshop

was announced, the *New Directions in Chemistry Teaching* by John Bradley the president of IUPAC CTC and Alex Pokrovsky president of the scientific division of UNESCO.

The lectures and workshops included educational processes 72,7%

The distribution of the topics was the following:

Methodology	32,1%	Primary and secondary schools	10,6%
Higher education	6,6%	Possibilities of multimedia and Internet	18,1%
Microtechnical experiments	5,3%		

<i>“Green Chemistry”</i>	10,6%
<i>Relations between industry and chemistry teaching</i>	9,4%
<i>Science of chemistry</i>	7,3%

The educational processes indicated there main tendencies:

1. Chemistry teaching should be based on the experience, materials and phenomena of everyday life. Scientific study and understanding of chemistry should be built on them.
2. Gaining experiences is necessary to extend to the area of science and environmental chemistry.
3. The use and publication of information should be carried through Internet and interactive CDs.

In the spirit of the year Hungarian Millennium the Museum for Science and Technology arranged an exhibition about Hungarian scientists. Éva Vámos director general of the museum opened the exhibition called *Hungarian Chemists in World*. The Museum for Science and Technology presented another exhibition about Liebig's life entitled *Justus von Liebig – Everything is Chemistry*. This exhibition was intended to express the internationality of science and was opened Prof. Ferenc Szabadváry. A special part of the exhibitions was the display *Chemistry in Sculptures* of Béla Vizi, lecturer from University of Veszprém. There was a wonderful composition, *A Helping Hand for the Sick Heart*, which showed a heart medicine formed to palm shape. Educators from all over the world could admire the united product of the chemist and artist in Budapest.

In an other show-case the collection of Peter Towse (Leeds) was displayed from the *Chemical Education Journals* included the Periodical of Chemistry for Grammar School Students. This bibliography was published in floppy, CD, as well as print.

Márta Szeness Maleczki (University of Veszprém) made a collection *Problems and Solutions in Chemistry* based on the material of János Irinyi National Secondary School Competition in Chemistry. The Hungarian Chemical Society has organized the competition for more than three decades. The collection was issued both in English and Hungarian languages for the participants.

The descendants of a traditional blue painting family from Gy_r introduced the tools and technology of the Hungarian blue dyeing in a spectacular and interesting show.

Traditionally, the exhibitors from industry and publishing presented their latest products on the conference. This year few exhibitors, 6 Hungarian and 3 foreign ones took part in this event.

The closing meeting was chaired by Academician Gábor Náray-Szabó. J. Lagowski the new vice-president of the IUPAC CTC was also present, who followed Hans Bouma after the expiry of

his mandate. Professor Wenxiang Zhu, leader of the Chinese delegation, announced that the 17th ICCE would be held in Beijing (Peking) in 2002, according to the decision of IUPAC CTC in Budapest on 7th August.

The high quality of the professional work, the accommodation and meals, the social programmes, all contributed to the pleasant atmosphere and the value of the conference. The accommodation was satisfactory for each participant, neither the foreign nor the Hungarian guests made any complaints about it. The morning coffee and the lunch were ensured with polite and careful service at the locally established restaurant. The first day Welcome Party was held in the tastefully decorated great hall with glass cupola ("Gömb" great hall) where plenty of various food was offered. The closing banquet was settled in the several hundred year old Esterházy-cellar in Szigliget at Lake Balaton. Nine coaches carried the guests to Szigliget through the marvelous and sunny countryside in the northern part of Balaton. The students from University of Veszprém commented on the sights in English language. The wine cellar was built at the foot of Szigliget Castle among the Volcanic hills. During the dinner the guests could enjoy different ceremonies and folklore programme. Hundreds of participants in the hope of further blossoming cooperation and friendship.

Summarizing the events of the 16th ICCE we can say that we are worthy of the former world conferences in Bangkok, San Juan (Puerto Rico), Brisbane and Cairo. Hungarian chemistry teachers considered a great honour that two Nobel-laureates and the most outstanding experts in educating chemistry has accepted our invitation. Beyond that a lot of qualified educators came to lead lectures, workshops or make posters. As a result, a great number of the 500 participants visited each venue. The international meeting was a significant occasion for the Hungarian teachers in chemistry, either. It was the first time that they were able to take part as equal partners and to extend their knowledge on a world conference.

Many thanks to our supporters, individuals as well as institutions at home and abroad for their help.