

Report on the CIMPA School on Groebner Bases and Applications

9-22 July 2005

Institute for Advanced Studies in Basic Sciences (IASBS), Zanzan, Iran

Background

Professor Cecil Moretta-DeWitt of Department of Physics, the University of Texas at Austin, who visited IASBS early 2003, was the first scientist who initiated the idea of organizing a CIMPA school at this institute. A concrete suggestion for the school came from a meeting on the establishment of an institute of mathematics at IASBS, late August 2003. The participants of this meeting were: M. Waldschmidt (President of the French Mathematical Society at the time), M. Behzad (President of the Iranian Mathematical Society at the time), Y. Sobouti (Director of IASBS), M.R. Khajehpour (Deputy Director of IASBS), B. Mehri (Sharif University), Rahim Zaare-Nahandi (University of Tehran) and Rashid Zaare-Nahandi (IASBS).

The title of the school was approved at this meeting. Later the scientific committee was selected as follows: Bruno Buchberger (RISC-Linz, Austria), Marc Chardin (CNRS & Paris 6, France), Aldo Conca (Genova, Italy), David Eisenbud (Berkeley & MSRI, USA), Gert Martin Greuel (Kaiserslautern, Germany), Bernd Sturmfels (Berkeley & MSRI, USA), Bernard Teissier (CNRS & Paris 6, France), Rashid Zaare-Nahandi (IASBS, Iran; local organizer). Further on, the organizing committee of the school was formed consisting of: Amir Rahnamai Barghi (IASBS, Iran), Rahim Zaare-Nahandi (University of Tehran, Iran), Rashid Zaare-Nahandi (IASBS, Iran), Manouchehr Zaker (IASBS, Iran).

Pre-School Activities

The application form of the school was arranged and sent to CIMPA so that the school can officially become a CIMPA program. It was approved after further improvements suggested by CIMPA. The invited speakers and their themes of lectures were communicated mainly by the scientific committee. The final list consisted of the following:

Bruno Buchberger (RISC-Linz, Austria): Historical introduction to Groebner bases, From Groebner bases to theorem proving and back.

Laurent Buse (INRIA Sophia-Antipolis, France): Resolution, elimination and Groebner bases.

Aldo Conca (Genova, Italy): Generic initial ideals.

Gert-Martin Greuel (Kaiserslautern, Germany): SINGULAR a system for polynomial computations, Lorenzo Robbiano (Genova, Italy) and Martin Kreuzer (Regensburg, Germany): CoCoA, Computation in Commutative Algebra.

Amin Shokrollahi (Lausanne, Switzerland): Coding theory and Groebner bases.

Marie- Françoise Roy (Rennes1): Computational real algebraic geometry.

The local organizer Rashid Zaare-Nahandi was asked to be in charge of the affairs of school at IASBS. He prepared the poster of the school which was distributed among the universities and research institutes in the country as well as some scientific centers and Iranian consulates abroad.

CIMPA was the source of the financial support of the school abroad. The organizing committee did not recommend further request for financial support from abroad with generous supports from IASBS, ISMO (Center for International Research and Collaboration, Tehran, Iran) and the Office of Scholarships of the Iranian Ministry of Science and Technology. The Iranian Mathematical Society was the honorary supporter of the school.

A couple of months before the school, Marc Chardin reported that the period of the school coincides with the time of the birth of his child. He needed to stay home. However, his help on the coordination with the lecturers and certain communications with the participants were instrumental. He then contacted a number of experts in the subject of school to take his role in the lecturing. But none was available for the duration of the school. The final setting of the scientific program was then coordinated and was made available at the web site of CIMPA and IASBS.

Applicants outside Iran were supposed to apply via CIMPA. They were selected by CIMPA for participation and travel support with coordination of the organizing committee.

Around 20 participants from abroad were accepted, many of them with travel support by CIMPA and waiver for registration fee. IASBS accepted to cover the local expenses of all participants from abroad. The participants from Iran were reviewed and selected by the organizing committee and the list was communicated to CIMPA. Most faculty members and graduate students interested for participation were accepted to be supported by IASBS. Around 80 participants were accepted from the country.

The communications by Iranian Consulates for entry visas of applicants went on for some time. This issue was not all smooth. Coordination with the Iranian Consulate in Milan, Italy and Moscow, Russia, were particularly tiresome. On the other hand, the organizing committee was privileged to receive a strong support from Dr. Farhad Rahmati, the Scientific Council of the Iran Embassy in France, who helped to facilitate the visa affairs at the Iranian Consulate in Paris.

Overall, 8 lecturers attended the school. The school was also honored to host M. Waldschmidt, the Vice President of CIMPA whose presence and active involvement with the organizers, the lectures and the participants was highly valuable.

Only a few applicants were not able to make their trip (one from Jordan and one from Iraq). Among 18 participants coming from abroad, there were 8 faculty members and 10 graduate students. The statistics of participants from abroad was: Brazil 1, Canada 3, France 1, Germany 1, India 1, Iraq 4, Italy 1, Kenya 1, Mexico 1, Morocco 1, Russia 1, Tunisia 2.

The number of participants inside the country was 67, with 13 faculty members and 54 graduate students. This brings the total number of participants and lecturers to 94.

The Scientific Program

The opening ceremonies of the school included a welcome by M.R. Khajehpour, the Deputy Director of IASBS, a speech by M. Waldschmidt, the Vice President of CIMPA on the recent record and forthcoming activities of CIMPA, and an inspiring message by D. Eisenbud, the Director of

MSRI, Berkeley, and the Ex-President of the American Mathematical Society. It followed by the announcements on the program by Rashid, the local organizer. Three speakers gave their lectures during the first week, four other speakers offered their lectures in the second week. All lectures were designed for one hour. The scientific program of the first week started with a lectures by B. Buchberger who offered the five scheduled talks and one more talk arranged upon a request by participants. M. Greuel offered five lectures followed by a tutorial session. L. Robbiano gave five lectures which were followed by popular tutorials sessions managed by M. Kreuzer in two groups of participants. These tutorials were extended to three more days in the second week. During the second week, M-F. Roy offered four lectures and one tutorial session on her topic. A. Conca gave four lectures with two tutorial sessions. A. Shokrollahi and M. Buse each offered three lectures. All lecturers followed the announced topics. Almost all lectures were actively attended by a large majority of participants ending with questions and answers. Some discussions continued over the coffee breaks which took place twice a day and was a nice place for all kinds of changes of ideas. According to many participants, they found the themes of school quite interesting and useful. On the other hand, the lecturers seemed to be impressed by the attention and seriousness of the participants. A feedback from participants by M. Waldschmidt to improve the lectures were extremely helpful to the lecturers. It was believed that it would be more useful if the level of participants were evaluated in the first day of school so that the lecturers would meet this level. It could have also been helpful if the lecture notes were made available to the participants upon arrival or even before the school. During the school, most of the notes were copied and distributed after the lectures.

Social Events and Excursions

On the forth evening of the school, the participants were invited by the Director of IASBS to a traditional restaurant in Zanjan called “Carvansaray Sanghi”. They had to sit on the floor inside several rooms of bazaar type. In this way, they could discuss and enjoy a variety of good local food and tea and live local music.

On the first day of the first weekend, the participants were taken to Katalah-Khour cave which is located 160 Kilometers to the south of Zanjan. It is one of the longest caves in the world, 200 Kilometers in three floors discovered so far. Only two Kilometers are open to the public. On the way back, the participants visited “Soltania Dome”, 40 Kilometers to the west of Zanjan, one of greatest break domes in the world. It was built by Soltan Mohammed Khodabandeh early 14th century A.D. Khodabandeh who became a Moslem, was one of the successors of Genghis Khan, the Mongolian, who concurred Iran late 13th century A.D.

The second day of the first weekend, there was a tour to a local museum “Rakhtshoorkhaneh” where statues of people in a common bath are exhibited. The participants spent their afternoon in a garden near Amand Village on the edge of Zanjan, where they could enjoy the nature and barbecue on the open air.

The third evening of the second week, the participants celebrated M. Kreuzer’s 43rd birthday while a local band played some Persian music and the participants were able to demonstrate their dancing skills.

The last evening of the lectures, a tour to a nearby park “El Daghi” was arranged. After some walks on the hills, some ceremonies were performed in a restaurant where some souvenirs were given to

the speakers. There the students and participants expressed their thanks to Rashid, the local organizer and they gave many complements.

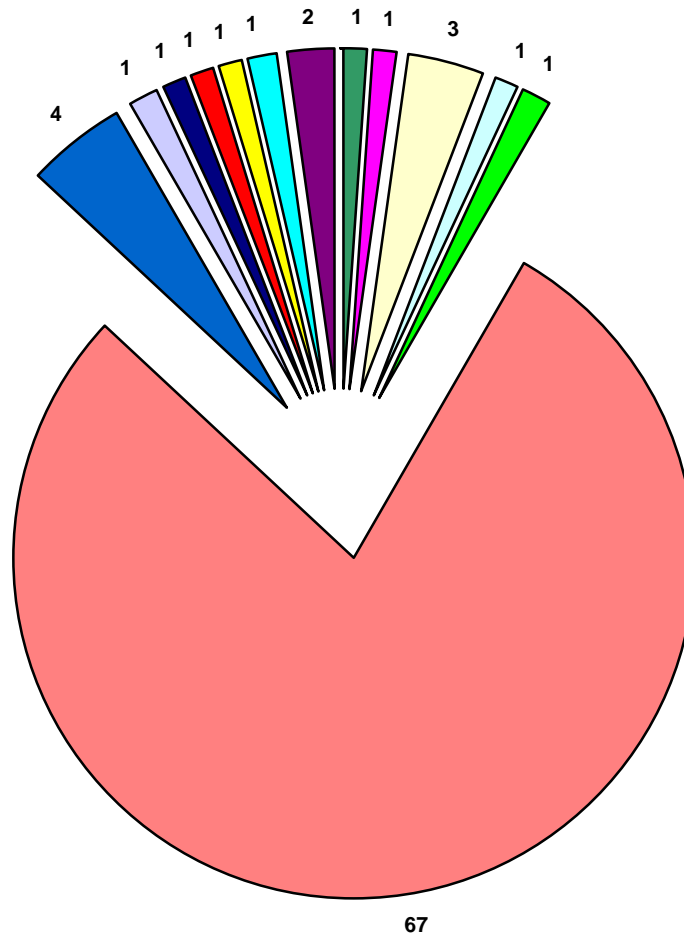
The second weekend was a trip to Isfahan the famous city in Iran with the most tourist attractions. Naghsh Jahann Square, Shah's Mosque, Aali Ghapoo Castle, Sheikh Lotfollah Mosque, Chehel Sotoun Castle, Kaiser Bazaar and Vank Church were among the most fascinating places visited by the participants from abroad.

In return from Isfahan, the participants from abroad, visited IPM, the Institute for Studies in Physics and Mathematics, meeting G.B. Khosrovshahi, the Director of Mathematics Department, M. Moniri, the Deputy and some researchers including S. Yassemi of University of Tehran.

Rahim Zaare-Nahandi
University of Tehran
Member, Organizing Committee

Rashid Zaare-Nahandi
IASBS
Local Organizer

Répartition par nationalité des participants à l'école
 "Gröbner Bases and Applications", Zanzan (Iran), 9-22 juillet 2005



■ ALLEMAGNE	1	■ BRESIL	1
■ CANADA	3	■ FRANCE	1
■ INDE	1	■ IRAN	67
■ IRAQ	4	■ ITALIE	1
■ KENYA	1	■ MAROC	1
■ MEXIQUE	1	■ RUSSIE	1
■ TUNISIE	2		

TOTAL = 85