

**REPORT OF THE RESEARCH SCHOOL “REPRESENTATIONS OF
ALGEBRAS”
ISFAHAN (IRAN), APRIL 7–15, 2019**

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This Research School took place at the University of Isfahan (Iran). This University has a quite big campus located not far from Isfahan center (about 45 min walking, and 4/5 metro stops), in a quiet and convenient area with many facilities. This University was founded in 1946 and offers undergraduate degrees in 70 fields and graduate degrees in 55 areas. It has 16553 students ¹

The school begun on April 7th, at 10 a.m., with the opening ceremony. The people who spoke were:

- Prof. Dr. Javad Asadollahi, from the University of Isfahan, local organizer.
- Prof. Dr. Houshang Talebi, President of the University of Isfahan.
- Prof. Dr. Jorge Mozo Fernández, representing CIMPA.
- Prof. Dr. Seyed Komeil Tayyebi, Head of the Office of International Affairs of Isfahan University.



FIGURE 1. Affiche of ISCRA

Previously to the school I contacted the Spanish Embassy in Iran, but in the dates of the school the Ambassador was not there, and nobody could attend the ceremony. The organizers also contacted French, Norwegian and Swiss Embassies, but nobody came.

The scheduled courses of this School were:

1. Apostolos Beligiannis (University of Ioannina, Greece): Variations on a theme of Auslander-Takinawa.
2. Aslak Bakke Buan (Norwegian University of Science and Technology, Norway): Tilting Theory and Generalizations.
3. Henning Krause (Bielefeld University, Germany): An introduction to Support Theory.
4. Karin Baur (Universität Graz, Austria): Grassmannian cluster categories.
5. Eleonore Faber (University of Leeds, United Kingdom): The McKay correspondence and noncommutative desingularizations.

¹Source: Wikipedia. https://en.wikipedia.org/wiki/University_of_Isfahan.

6. Bernhard Keller (University of Paris VII, France): Derived categories and homological invariants.
7. Pierre-Guy Plamondon (Université Paris-Sud XI, France): Gentle algebras: combinatorial and homological aspects.
8. Hugh Thomas (Université du Québec à Montréal, Canada): Lattice theory of torsion classes.
9. Mike Prest (University of Manchester, United Kingdom): Definability in module theory.

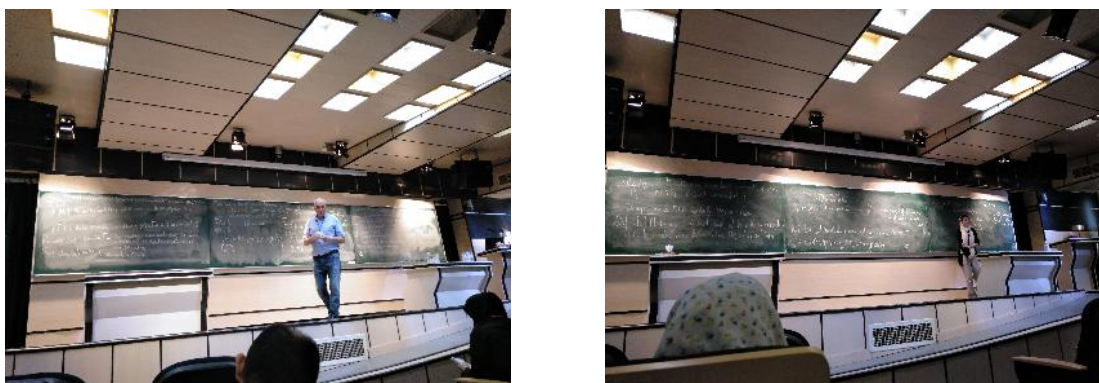


FIGURE 2. Lectures of Apostolos Beligiannis and Eleonore Faber

The school was followed by a conference, but I didn't stay for it. There were more than 60 students coming from Iran, and another 60 from abroad: India, Irak, Pakistan, Indonesia, Vietnam, Colombia, France, Norway, Italy, Canada, . . . Among them, 10 received partial or total funding from CIMPA, to cover either their travel costs, lodging and meals.

The courses took place in Kharazmi Leture Hall, at Mathematics Department, a very modern room well equipped with a brand new blackboard, a projector, sound facilities, and disabled-friendly. Meals were taken together at Sabz Restaurant, inside the campus, at less that 10 minutes walking from the Department (and the organizers provided a bus!). Most guests stayed in the University Guesthouse, inside the campus, also at less than 10 min walking distance from the school venue. A big group of students stayed in another guesthouse, Shams Guesthouse, which is a quite new building, also close to the mathematics department. Funded participants could have breakfast and dinner at the restaurant of the Guesthouses.

On Tuesday afternoon, a visit to the Armenian quartier of the city was organized, followed by the social dinner, that took place at Romanos Cafe and Restaurant in this quartier. During the visit, we had a guided tour to Vank Cathedral, we were invited to a coffee in one of the famous coffee shops of the quartier, and we visited the very interesting Isfahan Music Museum <http://www.isfahanmusicmuseum.com/>, where we were offered a concert of Iranian music.

On Friday, a full day tour to the historical city of Isfahan took place. The day begun with a short conference about the history of Isfahan, followed by a visit to the main touristic attractions of the town, with the help of an excellent English-speaking guide.

The main organizer, Javad Asadollahi, made a great work. I contacted him many times before the school, and he always gave me precise and useful information. He was surrounded by a good team of people that helped him, and I consider that the school was very succesful. The school

received attention from Iranian media. In the following links it is possible to find some news related with this school:

- <http://isfahan.isna.ir/default.aspx?NSID=5&SSLID=46&NID=75816>
- <http://www.ghatreh.com/news/nn46849957/>
- <https://tnews.ir/news/43e7130154342.html>
- <https://www.farsnews.com/isfahan/news/13980118001362/>
- <https://khabarban.com/a/23183587>
- <https://khabarone.ir/news/23060507/>

The final contribution of CIMPA was 10248 €. They were distributed as follows:

Tickets of the students	4548 €
Restauration	798000000 IRR (5700 €)

FIGURE 3. CIMPA expenses

Due to sanctions against Iran, I had to carry with me the money of the invoice of restauration, which is a huge amount. Moreover, inflation in the country grows at a high rate, and at the time of the school, the unofficial change was around 1€=140000 IRR. Other contributions to the school budget came from University of Isfahan and IPM-Isfahan. Precise details will be given in the organizer's report. To these quantities it is necessary to add my travel and visa expenses, that are 840,67 €.

In summary, I must say that the school was succesful. I could establish some contacts with several people, either at IPM-Isfahan, at Isfahan University of Technology and at IPM-Tehran, and we are preparing now a proposal for a CIMPA course for 2020.



FIGURE 4. CIMPA participants, Javad Asadollahi (local organizer) and Jorge Mozo (CIMPA representative), at Masjed Jame Mosque in Isfahan (left). A group of participants during the guided visit to Isfahan (right).

Isfahan and Valladolid, April 2019.