



ATTRACTING TALENT

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Published in September 2010

Group from the
Institute of Physics
at Unicamp
distinguishes itself
by bringing
researchers from
other countries

At a time when the importance of becoming international for Brazilian science is being increasingly discussed, the group of researchers led by physicist, Marcelo Knobel, a full professor at the State University of Campinas (Unicamp), is showing how the interchange of experiences between post-graduate students from different nationalities has the ability to breathe new life into a research environment and attract more researchers from outside, in a virtuous circle. Since 1990, Knobel, 42, has been coordinating a group dedicated to research into new magnetic materials that is based in the Laboratory of Magnetism and Low Temperatures (LMBT) of the Gleb Wataghin Institute of Physics, at Unicamp. As the group has collaboration agreements with scientists from several countries and is internationally recognized, Knobel often receives messages from foreign students interested in doing Master's degrees, PhDs and post-doctoral studies at Unicamp. He always assesses requests with interest and with the help of the university and research funding agencies, has managed to attract people from various countries to his laboratory – currently it has PhD students and post-doctoral fellows from India, Spain, Chile,

Colombia and Canada. “In addition to the interest of researchers, it helps a lot that we have scholarships that provide amounts that are very competitive internationally,” says Knobel. “They come to Brazil stimulated by the chance of working in an environment where it is possible to carry out cutting edge research and even build up a little nest egg,” said the professor, who is now also Unicamp's Undergraduate Studies pro-dean.

Canadian Fanny Beron is one of the post-doctoral fellows working in Knobel's group. She did undergraduate and Master's degrees and her PhD in engineering physics at Ecole Polytechnique de Montreal and in 2007 she was looking for a university in a foreign country to do post-doctoral studies. It was her tutor, Arthur Yelon, who was collaborating with Knobel, who suggested Unicamp. “I didn't want to go to the US, because I already knew the way of American life very well and I couldn't find place in Europe that had a good laboratory in an interesting city,” says Fanny, who does not regret her choice. “I have easy access to equipment that I didn't have in Montreal, I'm working with a good group that produces a lot and I have the opportunity to collaborate with several high-level researchers,” she says. Recently, she exchanged



the post-doctoral scholarship she received from a Canadian institution for one from FAPESP, which is worth R\$ 5,028.90 a month. “The amount was similar but FAPESP provides a very useful technical reserve for going to conferences,” she explains. “I know that research conditions at Unicamp are better than elsewhere in Brazil. Brazil is not a traditional choice for young foreign researchers, who generally prefer the United States and Europe, but here I found everything I needed and I also had the opportunity to get to know South America better,” she concludes.

Another foreign researcher who is satisfied with his experience at Unicamp is Spaniard Jacob Torrejón Diaz, who has just completed a year-long post-doctoral program in Knobel’s group and is preparing to undertake new post-doctoral studies at the Laboratoire de Physique des Solides in Paris, at the French National Center for Scientific Research (CNRS). In 2009, when he finished his PhD in nanostructured materials at the Autonomous University of Madrid, he saw that the alternatives for post-doctoral study in Europe were limited. “It was the beginning of the economic crisis and most of the scholarship programs and research contracts were drastically cut,” he recalls. He knew Professor Kleber Pirota, from Marcelo Knobel’s group, who suggested Unicamp to him. “He told me about open flow research grants from FAPESP, which were approved very quickly, within one or two months, while in Europe most agencies take a year to award a scholarship. I thought the research project, the equipment in the Laboratory of Magnetism and Low Temperatures and the economic conditions of the scholarship were all very attractive and interesting. So, I came to Brazil,” he says. On the eve of leaving the country, he considers his time at Unicamp to have been very useful to him. “I learned different magnetic characterization techniques, cryogenics, measurement techniques in the Synchrotron and the use of powerful apparatus, in addition to learning Portuguese and about the wonderful Brazilian culture,” he says. He also developed work in different areas, from ferromagnetic resonance to isolated

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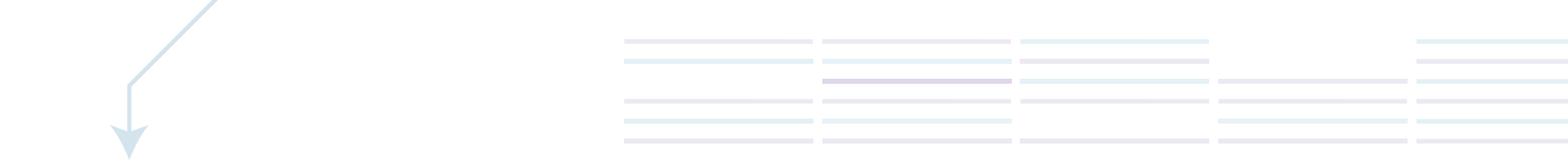
nanowires, which is being published in international journals. “I’m happy to have contributed to improving the equipment in the laboratory. I played an active part in assembling the nanostructures manufacturing lab. My time here served to establish a collaboration that I hope will be long-lasting,” he states.

According to Marcelo Knobel, the concentration of students from Latin America has meant that two languages have been adopted in the laboratory: in addition to English, which is the *lingua franca* of science, “*portunhol*” can also be heard. Fanny and Torrejón Diaz worked with researchers, like Indian, Surender Kumar Sharma, who did his first degree, Master’s and PhD in physics at the Himachal Pradesh University, and who, since 2007, has been at Unicamp, with a grant from FAPESP. “I started collaborating with Surender when he was doing his PhD and then he decided to come here,” recalls Knobel. “There’s an interesting aspect in his case. He has just managed to bring his wife here, who has also succeeded in

getting a post-doctoral grant in biology, also from FAPESP,” he states. The group also has students like Chilean, Lenina Valenzuela, a physicist from the University of Santiago, who since 2007, with Knobel as her tutor, has been doing a PhD in magnetoimpedance, with a grant from the Coordinating Office for the Improvement of People with Higher Education (Capes). All foreigners work with Brazilian Master’s and basic scientific undergraduate research students, who, according to Knobel, benefit not only from the shared knowledge and experience but also from the opportunity to become acquainted with other languages and with an international research environment.

Bureaucratic tasks - Knobel says that it is not enough to be willing to bring in foreign researchers; institutional support is also fundamental. “In other countries, the leader of a research group receives a grant and has the autonomy to manage the funds and bring people from outside. Here in Brazil that is not how it happens. It has only worked because Unicamp has strong globalization goals and actively looks for new partnerships for student exchanges,” he says. The researcher warns, however, that there are still several hurdles to be overcome, which often end up overloading the group leader with bureaucratic tasks, such as obtaining visas and even helping guest students find a place to live. The pro-dean of Research at Unicamp, Ronaldo Pilli, confirms that there are still difficulties. “I had to be the guarantor of the rent for a foreign guest researcher I brought into my group,” he said.

Knobel’s group attracts attention because of the diversity of its foreign researchers, but his is far from being an isolated example at Unicamp. A PhD grant program established by the CNPq in partnership with the Academy of Sciences for the Developing World (TWAS) has brought in groups of Pakistani students who are interested in doing a PhD at the university’s Institute of Chemistry (IQ). “The interesting thing is that this process has a knock-on effect and I’m getting more and more requests from Pakistanis interested in



coming to Brazil,” says Pilli, who is a professor at the IQ. There is another successful example in the field of basic undergraduate scientific research, also in the area of chemistry. This is a pilot program from FAPESP and the National Science Foundation (NSF), which promotes the exchange of undergraduate students in chemistry from universities in São Paulo and the US. The opportunity, in this case is two way: students from Unicamp do internships in the US and American students come to Brazil to do the same. One of the students who participated in the program, Ricardo Barroso Ferreira, 21, was recently the co-author of an article in the journal, *Science*. Because of the internship he did at the University of California, in Los Angeles, he participated in a project that resulted in the creation of a three-dimensional synthetic crystal capable of capturing carbon dioxide emissions, which was the theme of the *Science* article.

Unicamp has a strategy to expand its globalization. According to the pro-dean, Ronaldo Pilli, in 2009 a project started that aims to attract foreign visiting professors to teach short courses. A public bid notice, issued last year in partnership with the Undergraduate Pro-Dean’s office, received 60 proposals from departments interested in

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bringing visiting professors to teach on post-graduate courses lasting at most two months. Twenty-seven proposals were selected and Unicamp is going to invest R\$ 400,000 in the first year. There is also an effort to attract visiting researchers for longer periods. The goal is to offer scholarships for one to two years for people who are of interest to departments, with the chance of the person becoming a candidate for a teaching position at the end of the

scholarship period. Advertisements in international scientific journals, like *Nature* and *Science*, attracted more than 50 interested people, who sent their résumés to Unicamp, which were scrutinized by the departments. Those selected were invited to visit the university and there are already two of them, a Canadian and a Frenchman, who will spend up to two years at Unicamp as from March. “We are not only interested in bringing foreigners here, but also in repatriating Brazilian researchers who are working abroad,” says Pilli. To facilitate the inclusion of these researchers, Unicamp is planning to change the selection rules for certain categories of teachers, to allow the tests to be done in a foreign language.

Also in the education field, Unicamp is working hard towards globalization. Each semester the institution receives about 100 foreign undergraduate and post-graduate students, most of them from Latin American countries with which the university has agreements; the total number of foreigners studying at Unicamp ranges between 800 and 1,000 students. “Demand is great from students from countries like Peru and Colombia, who see Unicamp as a reference point in the exact sciences and engineering,” says physicist Leandro Tessler, who is responsible for the Institutional and International Relations Coordination Office (Cori). He said that the university has made efforts to establish agreements with American and European universities. “There is room to grow, especially with the United States,” he says. The idea, according to Tessler, is to apply in education the same strategy that is used in research. “The university shows its credentials when it gets exposure in the outside world. In research, we adopt international standards and we have become recognized. We are now doing the same with education,” he says. One of the advantages is having students from Unicamp make contact with different ideas. “Brazilian university groups are very homogeneous and it is good to have more diversity,” he says. But the fundamental goal is to ensure a globalized higher education. “Students become more competitive when they have international experience,” Tessler states. ■

