

São Paulo realizes Salam's dream

São Paulo is the proud host of the first overseas offshoot of the International Centre for Theoretical Physics, which was set up by Abdus Salam 50 years ago. **Matin Durrani** finds out about the new institute

Nathan Berkovits has a very simple office. There's a desk with a computer, a crumpled sofa, a few chairs and a whiteboard covered with equations. But then you don't really need anything too fancy if you're a string theorist – apart from an innate mathematical aptitude for describing the fundamental interactions of nature in terms of 1D strings. In fact, the relatively low cost of theoretical physics has always made it a popular choice for emerging nations to kick-start their scientific efforts. Brazil is no exception: the Institute for Theoretical Physics (IFT) at São Paulo State University (UNESP), where Berkovits is based, dates back to 1951, when Brazilian science was just getting off the ground.

But for the past two years, Berkovits has had new things on his mind other than wondering why string theory only holds true in a 10D world or figuring out how to “compactify” the extra dimensions so that it tallies with our familiar 4D world. That's because in February 2012 he took over as acting head of the first overseas offshoot of the renowned International Centre for Theoretical Physics (ICTP) in Italy. Rather clumsily known as the ICTP South American Institute for Fundamental Research, the ICTP-SAIFR has the same aims as its parent institute, which are to carry out top-quality theoretical physics, host scientific schools and workshops, and invite leading scientists to stay.

The ICTP-SAIFR is located on the first floor of the existing six-storey IFT building in the downtown Barra Funda district of São Paulo – the largest city in South America. It may look like many other university buildings, but the institute is remarkable in that it is the physical realization of the ICTP's founding father Abdus Salam. When he set up the ICTP on Italy's Adriatic coast in 1964, Salam wanted it to pursue world-class research and nurture scientists in the developing world, which it has done to great effect in the intervening 50 years. But Salam, who died in 1996, also wanted the ICTP to set up regional satellite centres in developing nations.

Salam's vision was finally realized in 2012 with the founding of ICTP-SAIFR, which receives most of its budget from the São Paulo Research Foundation (FAPESP), with additional support from



Damilo Rodrigues Ramos

Centre of attention International students at a summer school on mathematical biology at ICTP-SAIFR.

the ICTP and UNESP. Some 20 UNESP professors are affiliated to the IFT, and the first of a further five permanent faculty members of the new institute – particle theorist Eduardo Pontón from Columbia – has already been recruited. These faculty are being unearthed by a prestigious international search committee featuring star names like string theorist Ed Witten, cosmologist Martin Rees and particle theorist David Gross. “We are interested in experienced people who can come and set up a new group of promising theorists at the start of their careers,” says Berkovits.

International appeal

The ICTP-SAIFR has so far run 10 international schools, eight mini-courses and seven workshops attended by some 1000 visitors. It is also home to nine full-time postdocs, one of whom is Riccardo Sturani, who moved to São Paulo from Italy in March 2013 after his contract at the University of Urbino ended. Sturani models cosmological sources of gravitational waves and calculates what these signals might look like if seen at detectors such as LIGO in the US and VIRGO in Italy. But with no previous connection with the ICTP, Sturani certainly would not be living and working in São Paulo were it not for the new institute. “The institute is very good – it's active and you can discuss your work a lot,” he says. “The only drawback is that living in São Paulo is very hard for me – I'm not used to big cities and I don't often get to see my friends back home.”

Despite the loud, noisy, big-city vibe, Sturani admits he would consider staying in São Paulo once his contract is up. In fact, the many charms of the city – including its friendly people and vibrant cultural life – can be hard to resist. Just ask the US-born Berkovits, who studied physics at Harvard University and did a PhD at the University of California, Berkeley before moving to Brazil in the mid-1990s. Back then, many home-grown Brazilian physicists still opted to further their careers by working abroad, so going in the opposite direction might have seemed an odd move for a young researcher. “Actually, I saw it as a challenge,” he recalls. “It felt like something new for me, plus I like Brazil and it's enjoyable living here. People are optimistic, friendly and helpful, and see the country getting better.”

But one thing that has not changed in the 20 years since Berkovits first came to Brazil is that it is still a highly bureaucratic nation. Dealing with paperwork can be infuriating and time-consuming for university researchers, reducing their time for science. The bureaucracy can also mean that people get selected for academic posts for reasons that are not always transparent. But with its unique form of funding, the ICTP-SAIFR can “get round” the system, for example by letting Berkovits recruit scientists in a clear and rigorous way. And in a relatively conservative nation where there is a wide resistance to change, the presence of a new, outward-looking institute can only be a good thing for Brazil.