

# News & Analysis

## Budget crunch hits Brazilian physics

Brazil's political crisis is taking its toll on science with thousands taking to the streets in protest, as **Henrique Kugler** reports

Scientists in Brazil have come out in protest against devastating cuts to science that are threatening to close institutes and funding agencies across the country. Last month about 900 people took to the streets in Rio de Janeiro to protest over budget reductions that have hit science this year. Meanwhile, around 80000 people in Brazil have signed an online petition, set up in late August, calling on Brazil's president, Michel Temer, to reverse the cuts.

After many years when it boosted investment in research, Brazil spent around R\$10bn (£2.4bn) on science in 2014, but that figure has been steadily dropping since then. This year the budget was initially planned to be around £1.4bn, but the new government that took over in August 2016 following the impeachment of Dilma Rousseff slashed it even further to £807m.

As a result of the cuts, major scientific agencies are now starting to run out of money. The National Council for Scientific and Technological Development, for example, may not be able to pay employees and researchers this month, while other major science and research centres such as the National Observatory and the National Institute for Space Research are also facing restrictions on cash flows.

One institute that is particularly badly hit is the Brazilian Centre for Research in Physics (CBPF) in Rio de Janeiro, which is facing its worst financial crisis on record. This month, it is expected to run out of money and will be no longer able to maintain its £24m lab infrastructure or even afford basic expenditure such as electricity. The CBPF, which carries out research into a range of topics from nanotechnology to high-energy physics, is one of the top physics institutes in the country. It also serves as the main hub for the academic Internet infrastructure on which a variety of other scientific institutions rely, such as the Brazilian National Cancer Institute. Dur-



Denise Pires de Carvalho

ing the 2016 Olympics in the city, for example, the CBPF's facilities were used as the headquarters for the event's digital security.

To maintain its labs in 2017, the CBPF requires £5.6m – roughly what the institution has been receiving in recent years. However, this year's budget has been just £1.8m. “The bad news is that this money will be gone by mid-September,” says physicist Ronald Shellard, who is the CBPF's president. According to Shellard, the CBPF could perhaps survive until the end of the year with a £3.5m annual budget “without having to fire researchers or staff from other departments”. But the financial problems, he feels, are undermining attempts to develop a solid scientific programme of research at the CBPF.

### Brain drain

Brazil's Ministry of Science, Technology, Innovation and Communications (MCTIC) states that the financial constraints that hit the CBPF will be dealt with on a month-by-month basis. While ministry representatives declined *Physics World's* request for an interview, they stated that they have been working jointly with other governmental institutions to ease the effects that recent cuts have had on research institutions.

### On the march

Some 900 people took to the streets in Rio de Janeiro to protest against budget reductions.

“We acknowledge the importance of investments in science and technology as vital to the development of the country and we work towards the recovery of the full budget that was initially expected for this year,” they say.

According to Shellard, however, the MCTIC is not to blame for the lack of financial resources, but rather government figures who he says think that science is a secondary topic. “I don't believe this is part of a wicked governmental plan to dismantle the country's scientific endeavour; it's more like the government has no plan at all.” Indeed, he is optimistic, despite the problems, that a solution to the crisis can be found.

Yet many Brazilian researchers, particularly those starting out, are already leaving the country. “The current status quo has been one of discouragement to new generations of scientists”, says physicist Ildeu de Castro Moreira, who is president of the Brazilian Society for the Progress of Science. “If no action is taken soon, the future of Brazilian science and technology will be dramatic.”

### Doomsday scenario

As well as the protests and petitions, members of the scientific community are also regularly heading to Brasília, the country's capital, to persuade politicians and policy makers that science is crucial for the country's economy and is not a trivial expense. “Strangely, many politicians in Brazil seem to have a hard time in understanding such a message,” says Shellard.

So serious is the situation that the CBPF's communication department has been running a public-awareness campaign that is inspired by the metaphorical Doomsday Clock, which is used by the *Bulletin of Atomic Scientists* as a warning of the risk of global catastrophe. According to the CBPF's campaign, “2017 might be the year when the clock of Brazilian science approaches its midnight.”