

NEWS AND ANALYSIS

HP shuts down maths institute

To cite this article: 2002 *Phys. World* **15** (1) 11

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CAREERS

From physics to medicine

Judy Lieberman began her academic career as a theorist in high-energy physics during the heady days of the 1970s. But she has now given up contact with the world of physics and is instead working on an innovative approach to an AIDS vaccine at the Harvard Medical School's Center for Blood Research. "Being able to do something that is socially useful, such as developing an AIDS vaccine, is important," she says.



Innovative - Lieberman

Lieberman's physics background was impeccable. Abraham Pais oversaw her PhD work on Higgs bosons at Rockefeller University. At the Institute for Advanced Study she worked with Steve Adler on the weak interaction, studies that she continued at Fermilab. But she felt she could not meet her very high expectations. "As I matured I wanted to do more with people rather than sitting in my office facing a blank piece of paper. A lot of physicists were too shy to come and talk to me, and I was too shy to talk to them," she says.

Thus when a mathematician friend who had gone to medical school suggested that she do the same, she took the opportunity. She chose a programme at Harvard and

MIT that, because it involved a great deal of physics, engineering, and mathematics, was intellectually stimulating for her. Her continuing intellectual curiosity took her back into the research laboratory. "I went to a lab at MIT studying T cells involved in immunology," she says. "I was then offered a faculty job and decided to work on HIV."

The change of intellectual scenery surprised her. "When I made the transition I didn't realize how very different the world of biology is from that of physics. The cultures are as different as C P Snow's two cultures," she says. "In theoretical physics you didn't need a lot of money to do your work; it was open to anyone – a sort of democratic, open society of intellectual discourse. In biology you need to accumulate a certain amount of money and resources. So it's a much more aggressive, Darwinian type of world. In theoretical physics the ideas are everything. In life science that's not the case. The important thing is being able to accomplish whatever it is you want experimentally, which often requires specialized resources."

Peter Gwynne
Boston, MA

AUSTRALIA

'Dismal' future for science

Australian science faces difficult times following the return of the conservative government in the general election last November, with funding likely to fall further compared with other OECD countries. And an analysis from Australia's learned societies shows that science may disappear from universities and schools within two decades.

Leading figures in Australian science estimate that the country's research base needs another A\$13–14bn (about £5bn) over 5 years to catch up with the average expenditure on R&D in other OECD countries, having suffered continuous cutbacks since 1996. But it looks set to get none of this. The high cost of detaining asylum-seekers and contributing troops to the war in Afghanistan has stripped the nation's budget surplus, leaving the new Minister for Education and Science, Brendan Nelson, with no flexibility to make changes to funding in the coming year.

At the start of the election campaign, the

prospects for science looked good. The opposition Labor Party put forward a "Knowledge Nation" policy to restore funding for public institutions. But the Prime Minister, John Howard, devoted most of his energy to the question of asylum-seekers.

The president of the Australian Institute of Physics (AIP), John O'Connor, now regards the prospects for science in the country as "dismal". The long-term health of science, he said, needs "continued injections of new early career researchers so we do not suffer bulges of older scientists nearing retirement as now".

The AIP, along with its counterparts in chemistry, mathematics and engineering, has issued a report showing that by 2020, if the current rates of decline continue, there will be no staff in university science departments and no students choosing science subjects in their final year of secondary school.

Peter Pockley
Sydney

SIDEBANDS

$g-2 \pm$ some confusion

An algebraic error made by theorists means that recent measurements of the magnetic moment of the muon made at the Brookhaven Laboratory in the US do not disagree with the Standard Model of particle physics by as much as had first been thought (see *Physics World* March 2001 p5). Marc Knecht and Andreas Nyffeler of the Centre for Theoretical Physics in Marseille have discovered that three groups had calculated a quantity known as the pion pole contribution to be -55.6×10^{-11} when it should have been $+55.6 \times 10^{-11}$. This means the chance that the difference between theory and experiment is due to a fluke is actually 13%, not 1% as claimed at the time.

● www.bnl.gov/bnlweb/pubaf/pr/2001/bnlpr020801_ud.htm

HP shuts down maths institute

A unique link between business and academia was lost late last year when Hewlett-Packard closed its Bristol-based Basic Research Institute in the Mathematical Sciences (BRIMS). Set up in 1994, BRIMS employed six core staff to carry out research in quantum physics, probability theory and dynamical systems. It established strong ties with Bristol University and the Isaac Newton Institute for Mathematical Sciences in Cambridge, but fell victim to the company's squeeze on fundamental research.

US decides on Pluto mission

A spacecraft equipped with sensitive, miniaturized cameras, a radio-science instrument, ultraviolet and infrared spectrometers, and space-plasma experiments has been chosen by NASA to fly to Pluto and the Kuiper Belt. The mission will be headed by Alan Stern of the Southwest Research Institute and will include representatives of Johns Hopkins and Stanford universities, Ball Aerospace Corporation, NASA's Goddard Space Flight Center, and the Jet Propulsion Laboratory. The mission is due to launch in January 2006 and should reach Pluto's neighbourhood between 2014 and 2018.

Radio telescope to be upgraded

The US has approved an expansion of the Very Large Array, the conglomeration of 27 radio telescopes in New Mexico. The ageing observatory will be updated with modern technology designed to improve its scientific capabilities more than tenfold. The upgrade will use funds provided by Canada and Mexico in addition to \$58.3m from the US National Science Foundation.