



The African Institute for Mathematical Sciences campus in the seaside Cape Town suburb of Muizenberg, South Africa.



Neil Turok (center), founder and chair of the African Institute for Mathematical Sciences, with some of the institute's students. From left to right are Guy Lusilao-Zodi, Jules Baruani, Johnny Lokake, and Tony Nzundu.

"Source of bright people"

"The biggest contribution we can make towards addressing poverty is ensuring that our people are skilled and that they have a good foundation in math and science," says Nhlanhla Nyide, science communications director for South Africa's Department of Science and Technology. The DST is emphasizing graduate education in a 10-year innovation plan it rolled out this year, which, among other things, calls for doubling the number of science, engineering, and technology PhD graduates from South African universities by 2018. Centers such as AIMS and the new South African theoretical physics institute (see box below), both supported by the DST, will be essential to that effort, says Nyide. "If we let only the developed countries do the basic research, we would just be basically committing suicide because we will always have to rely on them for new knowledge."

Although AIMS has introduced more visiting black African students to

the South African physics community, it has a poor record of attracting black South African students to its program, says Nithaya Chetty, president of the South African Institute of Physics. "There are no South African students around," says Hahne. "The few are being sought by industry and other businesses because there is such a huge skills shortage from the historically disadvantaged communities." Elementary- and high-school math and science education is a problem that needs "very serious attention," says Chetty, "[but] the challenge we face is that we've got to simultaneously address our needs and aspirations at multiple levels of the education system."

"It's about seeing Africa as a source of bright people, and not just as a problem," says Turok, whose parents were imprisoned in South Africa for resisting apartheid when he was three years old. Last year Turok told the AIMS incoming class that the next Albert Einstein can and should come from Africa. That idea, he says, came from a discussion he had

with the granddaughter of physics Nobel laureate Max Born; she noted the number of fundamental contributions made by Jewish scientists in the 20th century after they were permitted full participation in European universities starting in the late 1800s. "We as African students just need good learning facilities," says Ibrahim Nsanzineza, an AIMS student from Rwanda. "Poverty is the only challenge we face in becoming African Einsteins. Otherwise we have everything else needed to become so."

Jerme N. A. Matthews

Nanoscience outreach rolls out nationwide

"The NanoExpress is a mobile scientific theme park," says Gary Harris, electrical engineering professor at Howard University and director of the trailer-turned-laboratory that its scientists use to explain how atomic force and electron microscopes work. "We go wherever people are interested in learning about nanotechnology."

On 2 April the trailer was parked outside the Rayburn House Office Building in Washington, DC. Inside the building, congressional staffers, science policy advocates, and others watched video clips of role-playing dialog exploring the societal and ethical implications of nanotechnology (see <http://www.powerofsmall.org>) and used a vibrating joystick to simulate the forces of an atom moving across a surface.

The stop on Capitol Hill was part of the first nationwide NanoDays, a week in which some 100 or so museums and universities carried out educational activities organized by the Nanoscale Informal Science Education Network.

Theoretical physics in Africa

The National Institute for Theoretical Physics (NiThEP) opens its doors this month in the town of Stellenbosch, about 50 km east of Cape Town, South Africa. The institute is one response to the 2005 report *Shaping the Future of Physics in South Africa*, in which an international panel of physicists recommended that it be established "to respond nimbly to national science policy initiatives." The main center for NiThEP will be located on the campus of the Stellenbosch Institute for Advanced Study. Two other regional centers have been established in the country at the universities of KwaZulu-Natal and the Witwatersrand.

The Kavli Institute for Theoretical Physics in Santa Barbara, California, has served as a model for NiThEP, says interim director Hendrik Geyer; David Gross, KITP director, will give the NiThEP inauguration talk. Citing the need for more graduate courses in theoretical physics, Geyer says, "We foresee that we will be actively engaged in graduate-level teaching." Researchers from NiThEP will also work with students at the African Institute for Mathematical Sciences near Cape Town (see the story on page 25).

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