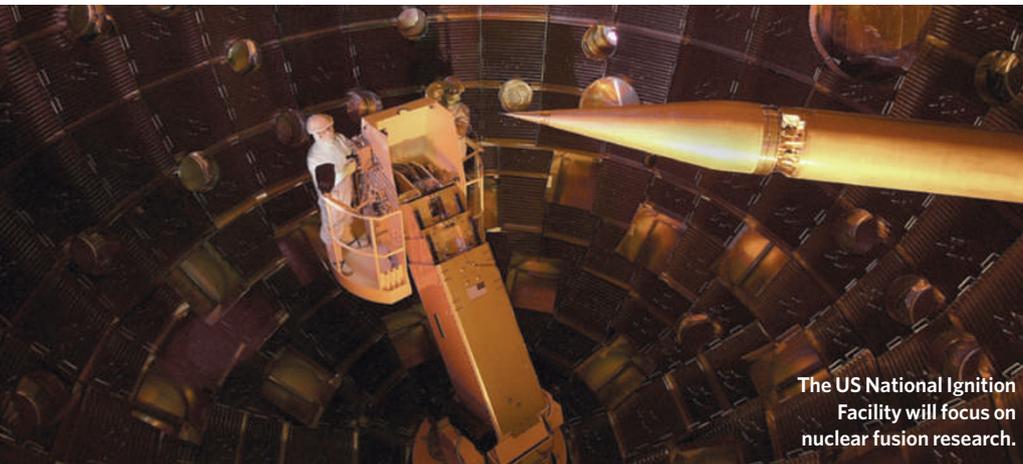


**HAVE YOUR SAY**

Comment on any of our News stories, online.

[www.nature.com/news](http://www.nature.com/news)



The US National Ignition Facility will focus on nuclear fusion research.

Experiments have already begun towards NIF's primary mission: finding other ways to certify the safety and reliability of decades-old thermonuclear weapons rather than testing them underground. However, some critics have questioned whether this research will contribute much towards 'stockpile stewardship' (see *Nature* 407, 129–130; 2000).

Still, there are other reasons for NIF. This year, scientists will use the machine to explore astrophysical questions, such as how the implosion of a massive, dying star leads to supernova explosions. And Raymond Jeanloz, a geophysicist at the University of California at Berkeley, wants to probe the conditions expected inside giant exoplanets. "There's a regime at these high pressures where the chemistry is wonderfully and totally different," he says, "and it has never been accessed experimentally."

As NIF's shots reach full strength, perhaps as early as 2010, a third community will be feeling excited: those who hope to use nuclear fusion as a potential source of energy. A competing technique, used by fusion projects such as ITER in Cadarache, France, traps hydrogen fuel in magnetic fields while heating it to temperatures far greater than that of the Sun. Although both laser- and magnetic-fusion machines have achieved bursts of energy from fusion, none has achieved the conditions necessary for self-sustained fusion power. NIF's proponents think they have a chance. "We've been waiting for this since the 1960s," says Moses. ■

**Eric Hand**

## Laser facility flickers into life

The US National Ignition Facility (NIF) in Livermore, California, is almost ready to fire up its 192 laser beams to recreate the Sun's fusion burn.

The last of the project's 6,206 optics units — the mostly glass and crystal components that focus the lasers onto a tiny target — was installed on 26 January. It marked the end of the US\$3.5-billion facility's construction ahead of a federal deadline of 31 March.

After years of delay and hundreds of millions of dollars in overrun costs, "the project is, for all intents and purposes, completed", says NIF director Edward Moses. He will now focus on

ramping up the 'shots' of laser light. On hitting the target, the shots create temperatures of more than 100 million degrees and pressures that are thousands of times greater than at Earth's core, which scientists hope will trigger nuclear fusion. Although smaller lasers have achieved petawatt ( $10^{15}$  W) powers in femtosecond ( $10^{-15}$  s) bursts, NIF's total energy will exceed that of any current facility. Its goal is to reach 1.8 million joules, far greater than the 40,000 joules generated by the current leader: OMEGA at the University of Rochester, New York. It is likely to remain at the top until a similar facility, the Laser Mégajoule near Bordeaux, France, is completed in 2010.

## Iranian AIDS doctors' trial draws condemnation

Iran has sentenced two of the country's HIV researchers to prison for communicating with an "enemy government" and plotting to overthrow the state. Arash and Kamiar Alaei, who are brothers, underwent a half-day trial on 31 December in Tehran's Revolutionary Court. Kamiar was sentenced to three years in prison, and Arash to six.

The Iranian authorities notified the physicians' lawyer, Masoud Shafie, of the verdicts on 20 January. He has 20 days to appeal and intends to do so; the brothers say they are innocent.

The Alaeis were arrested last June, and their detention and trial were "unfair even by the draconian standards of Iran's penal code", says Jonathan Hutson, a spokesman for Physicians for Human Rights, based in Cambridge, Massachusetts.

Hutson points out that the six-month detention itself breached human rights, as Iran failed to meet its international legal

obligations to explain the arrests, or to allow the men access to lawyers or the right to contest their detention before a judge.

And although Iranian law prohibits anyone from being detained for more than four months without charge, the state filed the charge of communicating with an "enemy government" only in December. Moreover, at the trial the prosecution indicted the men on new secret charges, now known to be the plot charges, denying them the right to defend themselves against these accusations and their right to due process.

The Iranian authorities claimed that the brothers had collaborated with scientists around the world, attended international AIDS conferences, and met with non-governmental AIDS organizations. "Those are not crimes — that's good medicine," says Hutson, arguing that the verdicts will have a chilling effect on academic collaboration between Iran and the rest of the world.

Julio Frenk, dean of the Harvard School of Public Health, echoed this concern on 15 January. The brothers' rights must be respected, he said, "so that they may continue their important work and so that all Iranian scientists and their international colleagues may feel secure about working together to solve the shared public health challenges of the world".

Last week, the state-run Islamic Republic News Agency cited an Iranian counter-intelligence official as saying that the brothers and two other unnamed individuals had confessed to working on behalf of the United States to overthrow the state, and that these statements would be televised. "Given interrogation techniques and duress known to exist in other cases like this one in Iran, any purported confession must be viewed as tainted and unreliable," says Hutson. ■

Declan Butler

**See Editorial, page 511.**