



and potentially error-prone — quasar spectroscopy can be. Fabian is certainly cautious about Ubachs' result. "Extraordinary claims require extraordinary evidence," he says, pointing out that many results at a similar confidence level turn out to be wrong. The most

likely error source lies in assumptions about the behaviour of the distant hydrogen cloud, he says. Some parts of the cloud could be hotter or moving faster than other parts, and the hydrogen might be mixed with a smattering of other elements.

Even if further studies do push the confidence level across the five-sigma threshold that physicists regard as convincing, the reason for the changed mass ratio is not understood, nor whether it is an ongoing effect. If true "the laws of physics as we currently understand them are incorrect at their very core," says Michael Murphy of the University of Cambridge, who works with Webb. "A new set of physics laws must be found which explain the new observations."

It is unlikely that protons are simply losing weight. But various versions of string theory suggest that extra dimensions occupied by a particle might affect properties such as its mass. Subtle changes in these dimensions could make physical constants vary slightly, explains Barrow. However, "there's absolutely no observational evidence to support this vast array of ideas," cautions Fabian. The paucity of hard evidence for string theory may be partly responsible for the upsurge in interest in variable constants, Barrow adds; results like Ubachs' could eventually provide a good way to assess the ideas. "I'm sure we'll see some theory papers about this," he says. "I might write one myself."

Fabian agrees that the problem has been receiving more attention over the past few years, but that "it's still a minority interest". The research needs intensive work on the very biggest telescopes, "a large investment in something that could turn out to be zero". But he agrees that it is an important problem to tackle: "Let's keep shaking the pillars to make sure they're rigid." ■

Mark Peplow

shut down within three to four years (see *Nature* 435, 728-729; 2005). "There doesn't seem to be a next step in place," Shapiro says. "This is a moment where important decisions have to be made."

Although the report will strengthen scientists' case for the project, Mike Lubell, head of public affairs for the American Physical Society in Washington DC, cautions that the collider —

estimated to cost at least \$6 billion — still faces an uphill battle. "In an era where the government is not keen on

raising taxes or cutting defence funding, a big project like this is going to run

into a lot of problems," he says.

"I think this report will be very welcome in Europe," says Brian Foster, a physicist at the University of Oxford, UK, who is heading the European design

effort for the collider. Foster says that the Large Hadron Collider, a \$2.5-billion accelerator being built at CERN, the European particle-physics laboratory in Geneva, Switzerland, is consuming most of the continent's resources. A strong US bid for the ILC, he says, will strengthen the prospects of the collider, although he adds that Russia, Japan and China have all expressed interest in hosting it. ■ Geoff Brumfiel

**"Without a serious bid, the community is going to atrophy."**

## ON THE RECORD

**"The challenge will be to produce large quantities of this glue without it sticking to everything."**

Indiana University bacteriologist Yves Brun discusses plans to mass-produce a powerful, natural glue formed by *Caulobacter crescentus*.

**"A few years ago this kind of thing happened in Britain."**

Chinese government spokesman Qin Gang rebuts a report from the British Transplantation Society that accuses China of harvesting organs from executed prisoners. Britain executed its last prisoner in 1955; Gang did not elaborate.

Sources: Indiana University, Reuters

## SCORECARD

**Cephalopod quirks**  
Squids are found to have genetically inherited personality traits, such as shyness.

**Climateprediction.net**  
A programming glitch delays the distributed computing climate-modelling project by months.

**Campus health**  
A mumps outbreak sweeps the US Midwest, prompting health officials to administer thousands of vaccines.

**Medicinal pot**  
The US Food and Drug Administration declares there is no proof that smoking marijuana eases illness.

## NUMBER CRUNCH

A study in *The Lancet* quantifies the US government's return on 28 phase III clinical trials funded by the National Institutes of Health.

**\$335 million** was the total cost of the trials.

**470,339 years** of healthy life will be gained by patients over a ten-year span.

**\$15 billion** is the estimated economic benefit that these trials will provide over the next ten years.

Source: Johnston, S. C. et al. *Lancet* 367, 1319-1327 (2006)