point out that joining ESO will certainly impact the current program."

But, says PPARC chief executive Ian Halliday, "I do not believe we would have been taken seriously over ESO without accepting the potential pain. If we do not join ESO but want a big presence in ALMA and eventually OWL, ESO's Overwhelmingly Large telescope, then we will still have to make these cuts."

Further candidates for cutbacks are some of the telescopes in the Isaac Newton group on La Palma in the Canary Islands. The telescopes are jointly run by the UK, the Netherlands, and Spain, all of whom are under financial pressure. However, keeping the telescopes open could also be part of a UK strategy for joining ESO: The telescopes are at a prime site for observing in the northern hemisphere and could become the core of a European Northern Observatory. Larger projects, such as the proposed GranTeCan—twin telescopes similar to the 10-meter US Keck telescopes in Hawaii—or the European Extremely Large Telescope, could then be built at the site. The UK has initiated informal discussions with other countries about this idea as a *quid pro rata* for membership in ESO.

Glimmer of hope

The results of the UK government's recent across-the-board spending review offer a glimmer of hope: By 2004, money for science will increase by 7%. The government is currently deciding how to split the new money among PPARC and the other four research councils, which fund engineering and applied physics, biology, medicine, and environmental science. Historically, PPARC has done exceedingly badly in these competitions. But, notes Rees, the annual cost of ESO membership is only 5% of PPARC's budget and one-fifth of what it pays for CERN.

Still, many astronomers are worried that PPARC will not receive the funds to cover ESO's annual dues—not to mention the £65 million joining fee. "It will be a catastrophe for UK astronomy if the government does not back this bid for ESO," says Rowan-Robinson. Others, such as Birkinshaw, are more optimistic: "I cannot believe that the current level of discussion could happen without there being some assurance that additional funds will be found. There also appears to be willingness, at a high government level, to find funding that wasn't present before." A decision on PPARC's budget is expected in late October.

PAUL GUINNESSY

Fusion Community Cheers European Bid for ITER

France will vie to host the International Thermonuclear Experimental Reactor (ITER), a tokamak intended to test the feasibility of producing fusion energy. The July announcement by the French atomic energy commission was greeted warmly by fusion scientists. With the European Union's approval, the Cadarache nuclear research center, near Aix-en-Provence in southern France, would compete with sites in Canada and Japan to host ITER.

CEA/CADARACHE

THE CADARACHE nuclear research center in southern France might host the International Thermonuclear Experimental Reactor.

Earlier this year, Europe, Japan, and Russia endorsed plans for a smaller ITER than had been originally envisioned (see PHYSICS TODAY, March, page 65). The partners hope that the project's slashed price tag—halved to less than $4 billion—combined with strengthened European commitment will up the chances of the facility's actually being built.

A team of European fusion experts is evaluating Cadarache as a site for ITER in terms of technical suitability, safety, social acceptance, costs, and benefits to industry. "It is a well-equipped site," says Jean Jacquinot, director of Cadarache's fusion activities. "It has the necessary power sources and cooling sources, and we have experience managing large projects." And in France, where roughly 75% of the power is nuclear, ITER probably won't meet strong public protest. The European Union is expected to decide by early next year whether to bid to host ITER at Cadarache.

Japan and Canada are also keen to host ITER—the nonprofit organization ITER Canada recently set its sights on Clarington near Toronto. In addition, research and industrial scientists in Spain are lobbying their government to propose a site for the tokamak, which would give it access to European funding earmarked for less developed regions.

The French proposal is timely: Europe's Sixth Framework Programme, a five-year R&D budget that begins in January 2003, is being sketched out now. And, with France currently holding the six-month rotating presidency of the European Union, ITER is likely to get on the agenda. Without a European proposal to host ITER, says Alex Bradshaw, director of the Max Planck Institute for Plasma Physics in Garching, Germany, "support from the European Union might have dwindled." So even if ITER doesn't end up in France, the proposal alone could mean the project gets more European money. It would also increase Europe's political clout when it comes to negotiating a site for ITER.

Indeed, the French proposal is widely seen as a boost for ITER. As ITER Canada's Don Dautovich says, "It addresses a previous weakness—why isn't there a European country willing to host ITER?—and it increases the probability of ITER proceeding through to construction." European fusion scientists like the idea of a site conveniently near home. But the Canadian site is still seen as being the best technically, largely because the radioactive tritium needed for fusion experiments is produced there and wouldn't have to be shipped. It may also be the best location for enticing the US, which withdrew from ITER in 1998, to rejoin. Says Dautovich, "Canada could be a compromise site—it wouldn't be a defeat for either major power"—the European Union or Japan. A site decision is expected by late 2002, with construction to start, at the soonest, in 2003.

TONI FEDER

Journal Cost Studies Again Ruled Fair

In June, the French court of appeals ruled in favor of the American Physical Society (APS), the American Institute of Physics (AIP), and the estate of Heinz Barschall in the latest round

of a 13-year-old dispute. In 1986 and 1988, Barschall reported that Gordon and Breach (G&B) journals are costlier than other physics journals (see PHYSICS TODAY, October 1997, page 93; July 1988, page 56; December 1986, page 34). Some libraries use such studies as part of their purchasing decisions. Claiming that Barschall's articles constituted unfair competition, G&B filed suits in France, Germany, Switzerland, and the US.

AIP and its codefendants have repeatedly prevailed. Only in France did the court initially find in favor of G&B, citing a French advertising law that prohibits any comparison of nonidentical products. But that decision was later reversed, with the court stating that US law applied. G&B appealed, and although the court recognized the French advertising law, this past June it ruled against G&B, arguing that the studies contain "no element [that] leads one to doubt the trustworthiness of the results." It awarded AIP, APS, and Barschall's estate a total of roughly Fr 100 000 ($14 352). That won't cover the cost of fighting the case, says APS treasurer Tom McIlrath, "but we felt an obligation to protect our ability to freely discuss what we do."

Such protection was what the American Mathematical Society may have needed in a similar long-running battle with G&B in the 1980s. The AMS ultimately decided that the costs of litigation were too high to pass on to their readers. This and similar cases, wrote Judge Sand in his 1997 US decision favoring AIP and APS, are evidence of "a global campaign by G&B to suppress all comment upon its journals."

Chris Schneider, a spokesman for G&B, says Barschall's comparison of research and review journals is unfair—"It's like comparing apples and oranges." G&B also maintains that the survey had substantial factual errors, a claim rejected by all of the courts. G&B plans to appeal to the French supreme court.

LYNLEY HARGREAVES

Slice of Millimeter Spectrum Saved for Science

Radio astronomy and passive Earth sensing have gained protection in large chunks of the electromagnetic spectrum at millimeter wavelengths between 1.1 and 4.2 mm (71–275 GHz). The spectrum reallocations, agreed to this past May at the monthlong World Radiocommunications Conference (WRC) in Istanbul, Turkey, were the most extensive since 1979—when those high frequencies were still untapped by both science and the commercial satellites whose emissions can drown out the fainter signals radio astronomers look for.

These days, though, radio astronomers use thousands of molecular lines in the millimeter range to study the births of stars and galaxies, among other things. And, says Tomas Gergely, who oversees spectrum use for the US National Science Foundation, "there is an upward creep" in the frequencies commercial telecommunications satellites use. "Radio astronomy would like to have large contiguous segments of the spectrum for observing. As much as possible, we pushed satellite downlinks to the edges of windows," he says.

"The millimeter spectrum is the El Dorado of molecular line spectroscopy," adds Klaus Ruf, who chairs IUCAF, the International Council for Science committee that deals with frequency allocations for radio astronomy and space science. "The reallocations simply guarantee our future."

The increased protection is good news for projects such as the US–European Atacama Large Millimeter Array (ALMA) being built in Chile and the US–Mexican Large Millimeter Telescope under construction in Mexico. Even with the new allocations, however, radio astronomers will have to coordinate the millimeter bands with other users, probably through quiet zones around telescopes.

In Istanbul a cap was also put for the first time on the spillover from satellite emissions into a nearby radio astronomy band, 15.35–15.4 GHz. Two other astrophysically key frequencies, 5000 MHz and 43 GHz, got tentative protection, but the spillover problem will be tackled again at the next WRC, in 2003. Higher frequencies, up to 1000 GHz, are on the agenda for 2006.

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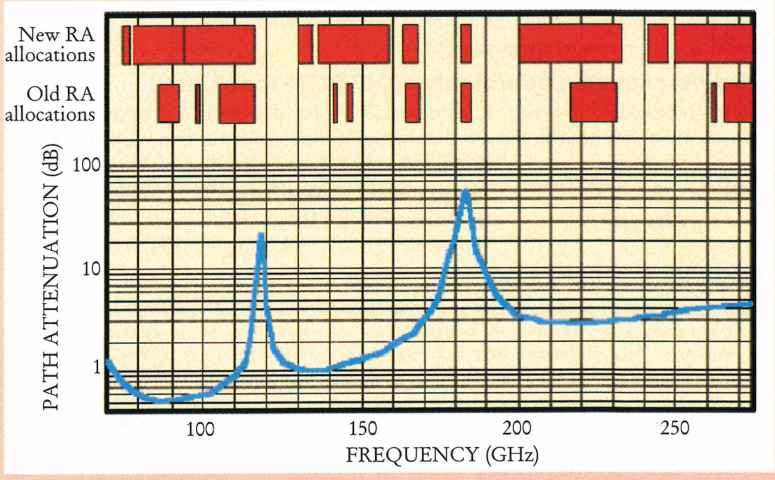

THE NEW (TOP) AND OLD SPECTRUM ALLOCATIONS for radio astronomy, 71–275 GHz. The blue curve shows the absorbance of radiation by the atmosphere: Signals come through to Earth's surface best in the flat valleys, and are most attenuated at the peaks. (Courtesy of John Whiteoak, Australia Telescope National Facility.)

IN BRIEF

ESO expands. On 1 January, pending final ratification, Portugal will become the ninth member country of the European Southern Observatory, which owns a host of telescopes in Chile, including the Very Large Telescope, and participates in the Atacama Large Millimeter Array (ALMA). At a signing ceremony this past June, science and technology minister José Mariano Gago said Portugal's joining ESO is possible because of "rapid Portuguese scientific development and [because of] the growth and internationalization of its scientific community." The country will pay an entry fee of DM 8 million ($3.8 million), plus about DM 3 million annually; ESO's 2000 budget is about DM 190 million. The UK is struggling to scrape together money to join ESO (see the story on page 55), and Finland is also considering becoming a member.

Middle East synchrotron. Members of SESAME (Synchrotron-light for Experimental Science and Applications in the Middle East) in June confirmed