

Fusion experiment crosses ocean

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related products, known collectively as the Nuclear Suppliers Group, later followed the US lead.

Nonproliferation activists have criticized the agreement because India has not ratified the Nuclear Non-Proliferation Treaty; they argue that the import of nuclear fuel will free up domestic output of enriched uranium for diversion to weapons.

In a joint statement, the heads of state blamed administrative issues, concerns over liability, and technical issues for continuing to hold up exports of Westinghouse and GE Hitachi reactors to India. "We will partner to ensure that both countries have affordable, clean, reliable, and diverse sources of energy, including through our efforts to bring American-origin nuclear power technologies to India."

According to their communiqué, the two leaders also agreed to strengthen and expand cooperation on clean energy by accelerating the integration of renewable energy into India's power grid and by promoting renewable and energy-efficient technologies.

"Climate change threatens both our countries, and we will join together to mitigate its impact and adapt to our changing environment," said the statement of cooperation endorsed by the leaders. "We will address the consequences of unchecked pollution through cooperation by our governments, science, and academic communities."

Jointly, NASA and the Indian Space Research Organisation (ISRO) are to build and launch an Earth-observing satellite, the *NASA-ISRO Synthetic Aperture Radar (NISAR)*, which is targeted for launch in 2020. NASA will provide one synthetic aperture radar instrument and other hardware, and ISRO will contribute a second SAR operating at a different frequency, the spacecraft bus, and the launch vehicle. The satellite will be capable of measuring changes on Earth's surface that are less than a centimeter across, according to a NASA press release. Ice-sheet collapse, ecosystem disturbances, and natural hazards are potential areas of research for the mission.

On 21 September NASA's *Mars Atmosphere and Volatile Evolution* spacecraft arrived at Mars. *MAVEN* is the first spacecraft dedicated to exploring the tenuous upper atmosphere of the red planet. ISRO's *Mars Orbiter Mission*, India's first spacecraft launched to Mars, arrived two days later to study the Martian surface and atmosphere and to demonstrate technologies needed for interplanetary missions.

David Kramer

news notes

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En route to the University of Illinois at Urbana-Champaign is a small fusion reactor, a gift from the Max Planck Institute for Plasma Physics in Greifswald, Germany. Some 70 tons of dismantled parts were shipped out in late September. The reactor, a tokamak and stellarator rolled into one, will be rechristened the Hybrid Illinois Device for Research and Applications (HIDRA).

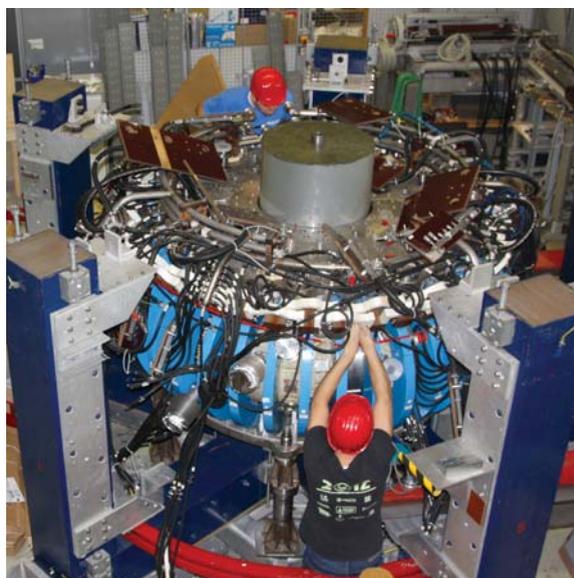
Understanding the interactions between the plasma and the containment walls will be the primary focus at HIDRA, although it will also be used for other studies and for training.

The reactor (shown at right during dismantling) got its start in 1975 in Grenoble, France, and spent time in Stuttgart, Germany, before opening shop in Greifswald in 2001. "The beauty is that it was made very well. That's why it has existed so long and why it will be useful to us," says David Ruzic, director of the Center for Plasma-Material Interactions at Urbana-Champaign. The univer-

sity is ponying up about \$1 million to cover the move, reassembly, 2.2 MW of power, staff, and about two years of operation.

At Greifswald, meanwhile, scientists needed to make room for the larger Wendelstein 7-X, which will start up next year with the purpose of demonstrating that a stellarator can attain the parameters necessary for a fusion power plant. The US is participating in the €370 million (\$460 million) German-led European project.

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