Science representatives seek to ease tensions in Middle East

US science delegation visits Syria with hope of improving bilateral relations. Similar overtures with Iran suffer a setback.

Members of a US scientific delegation visiting Syria in March were expecting only a perfunctory handshake from President Bashar al-Assad. Instead, the 10 US visitors began their scientific diplomacy mission at the top, conversing for 90 minutes with the ophthalmologist-turned-ruler about the role of science and education in meeting national economic and social needs.

It may have helped that Assad's father-in-law took part in arranging the visit. Still, as Vaughan Turekian, director of science diplomacy at the American Association for the Advancement of Science (AAAS) and one of the visitors, observed, it came as a pleasant surprise that the Syrian president "could talk with some level of comfort and detail about the role of science and technology to economic development."

Cold war origins

Scientific cooperation was a frequent tool for defusing tensions between the superpowers during the cold war. In recent years the concept has been extended to help thaw relations between the US and many Muslim nations in the Middle East. Although Secretary of State Hillary Clinton has not explicitly proposed ramping up scientific diplomacy, her science adviser, Nina Fedoroff, said cooperation between scientists of nations having poor or nonexistent diplomatic relations is "immensely important." Fedoroff, a molecular biologist, believes that connections between US and Soviet physicists helped to "keep the cold war cold."

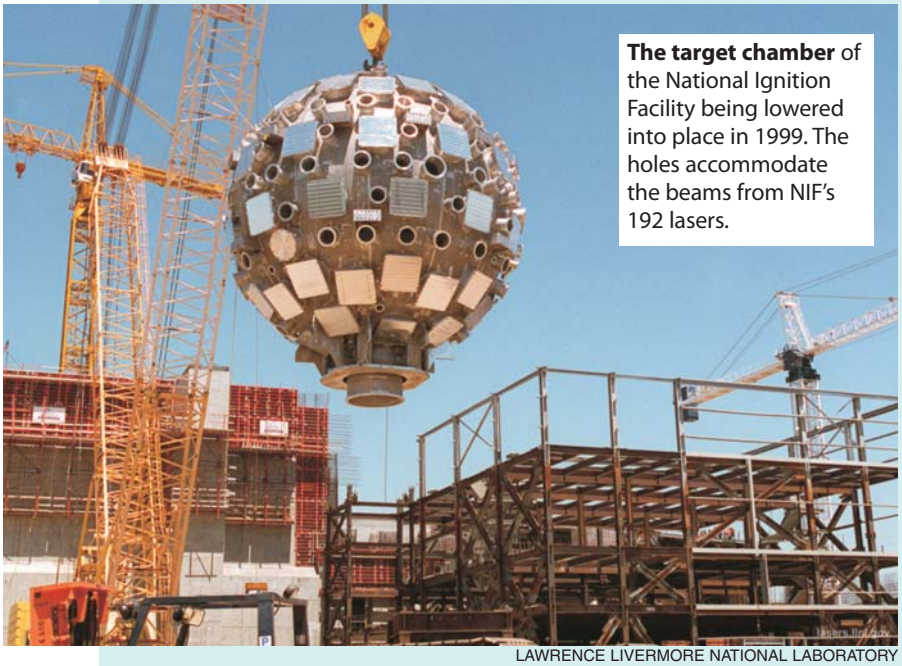
Fedoroff speaks from experience. She served on the founding board of the International Science Foundation, a nonprofit organization that was established in 1992 with $100 million from billionaire George Soros to find new jobs for Soviet scientists after the breakup of the Soviet Union. Fedoroff also recalled organizing, 30 years ago, the first US–Soviet workshop on agricultural biotechnology, jointly sponsored by the science academies of the two nations. The US–Russian collaborative relationship, she related, is about to

LLNL's laser fusion facility complete, but will it work?

After 12 years of construction, and a price tag that nearly tripled from $1.2 billion to $3.5 billion, the National Ignition Facility (NIF) has officially been declared complete. The massive instrument, housed at Lawrence Livermore National Laboratory in a building the size of three football fields, consists of 192 individual laser beams, all to be precisely and simultaneously focused on a tiny capsule containing a BB-sized pellet of deuterium and tritium fusion fuel. Researchers are hopeful that the device will create on a laboratory scale the conditions that occur in the secondary, fusion stage of a nuclear weapon. NIF will also be used for astrophysics and energy research. Program managers say that NIF is capable of narrowing each of its beams from about 40 centimeters square into a spot about one-half millimeter in diameter at the center of the target chamber. Such control is crucial to NIF's mission to attain ignition—the point at which the amount of fusion energy exceeds what it took to create the reaction.

In March the lab announced that NIF delivered 1.1 megajoules of UV light to the center of the 10-meter-diameter target chamber, but that is well below the original design goal of 1.8 MJ. Actual ignition experiments won't get under way until next year. But critics, including Stephen Bodner, former head of the Naval Research Laboratory's inertial confinement fusion program, predict that it will fail to work.

David Kramer



The target chamber of the National Ignition Facility being lowered into place in 1999. The holes accommodate the beams from NIF's 192 lasers.

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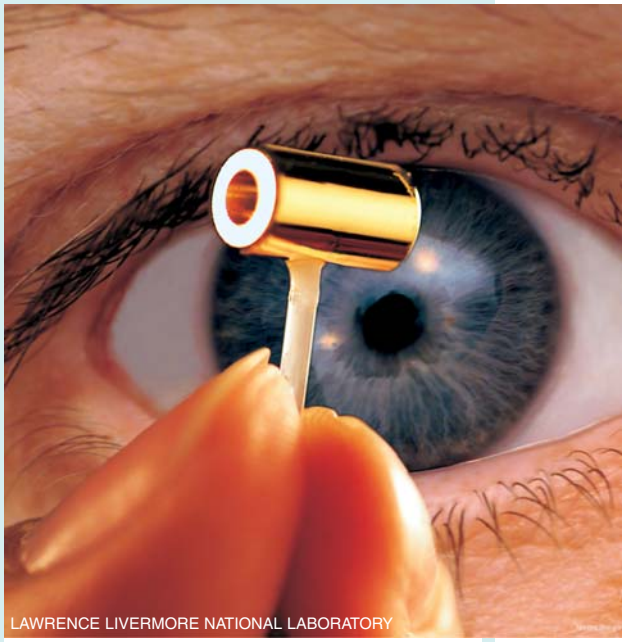

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A capsule containing fusion fuel, called a hohlraum, is about the size of a pencil eraser. The National Ignition Facility's laser beams will enter through the openings at each end to produce x rays that will implode the fuel, causing it to undergo fusion.