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U.S. Representative Tim Bishop to Speak at the Dedication Of the Center for Functional Nanomaterials at Brookhaven Lab

U.S. Department of Energy's fifth nanoscience center is BNL's newest facility



The Center for Functional Nanomaterials at Brookhaven National Lab

- On May 21st, at the dedication of the Center for Functional Nanomaterials (CFN) at Brookhaven Lab, Congressman Tim Bishop (New York-1st District) will address the federal government-national lab partnership that has made possible the building of the CFN, which is BNL's newest facility for scientific research.
- To be fully operational by April 2008, the CFN is headed by former Stony Brook University physics professor Emilio Mendez (see story on the back).
- To house research to find nanoscale-structured solutions to U.S. energy issues, the CFN is the fifth of five nanoscience centers to be built by the U.S. Department of Energy (DOE) at one of its national laboratories.
- At the CFN, scientists will not only study how to structure and fabricate materials at the nanoscale, but they will also develop new tools and techniques for doing this atomic level work.
- The CFN is funded by the Office of Basic Energy Sciences (BES) within DOE's Office of Science. In fact, Associate Director for BES, Dr. Pat Dehmer, will be among the dignitaries at the ceremony.
- Materials structured on the nanoscale have different chemical and physical properties than do conventional materials. The goal of research on this scale is to develop better, stronger and lighter materials for industrial and consumer use.
- As the only Long Island facility dedicated to research into structure and function on the nanoscale—or a billionth of a meter—the CFN is a state-of-the-art building with specialized laboratories and instruments.
- CFN resident and guest scientists will be exploring: nano-structured catalysts to improve the efficiency of fuel cells and manufacturing; processes based on biology to improve energy conversion and molecular self-assembly; electronics to improve energy storage and distribution and to revolutionize devices such as consumer electronics.
- To be home to about 100 resident researchers and support staff, the CFN will be the destination for approximately 400 visiting researchers annually from universities, industry and other labs primarily in New York and other states in the Northeast U.S.

Turn the page for more CFN stories ⇨

Meet Brookhaven Lab's scientific staff

Physicist Emilio Mendez Directs BNL's Center for Functional Nanomaterials

- As the Director of the soon-to-be-dedicated Center for Functional Nanomaterials (CFN, see story on front) since last November, Emilio Mendez, a former Stony Brook University physics professor, has been busy charting the scientific course upon which Brookhaven Lab's newest research facility is setting sail—as well as keeping his own nanoscience research up and running.
- “Emilio’s vision and interests are well aligned with Brookhaven’s broad strategic plans and, in particular, with our commitment to interdisciplinary nanoscience research to address this nation’s energy security,” comments Dr. Doon Gibbs, who is Brookhaven Lab’s Associate Director for Basic Energy Sciences. “We are especially enthusiastic about his connection to Stony Brook University and the opportunity that it offers to grow new and strong collaborations with that institution.”
- With an undergraduate degree from the University of Madrid, Spain, Emilio Mendez came to the U.S. to continue his education in physics. He earned a Ph.D. from the Massachusetts Institute of Technology in 1979 and then took a postdoctoral position at the IBM T. J. Watson Research Center in Yorktown Heights, New York.
- There, Dr. Mendez moved up the ranks, first becoming a member of the research staff and, later, a member of the strategic planning group and a line manager. At IBM, Dr. Mendez’s research involved finding ways to make faster transistors and computer chips, as well as more efficient lasers.



CFN Director Emilio Mendez, standing before Brookhaven Lab's newest facility while it was under construction

- In 1995, Dr. Mendez became Professor Mendez when he became a member of Stony Brook University's Department of Physics and Astronomy. In 2004, he became director of his department's undergraduate program.
- A Fellow of the American Physical Society, Mendez has received several awards for his significant scientific contributions. These awards include the 1998 Prince of Asturias Prize and the 2000 Fujitsu Quantum Device International Award. — Diane Greenberg

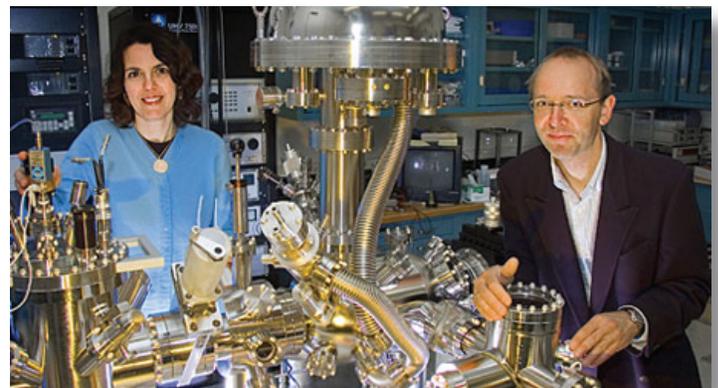
Research at the Center for Functional Nanomaterials

'Zepto'-Pipette Is World's Smallest

- Although you may not be busy measuring and dispensing liquids with a pipette, if you've ever had

your bodily fluids analyzed to evaluate your health or diagnose an illness, then accuracy and precision of pipettes has been important whether you realized it or not.

- Until now, the world's most accurate pipette, which is used to dispense well-defined fluid volumes for scientific research, had “atto”-liter—which is 10^{-18} liters—accuracy at best.
- At the Center for Functional Nanomaterials, researchers Eli Sutter

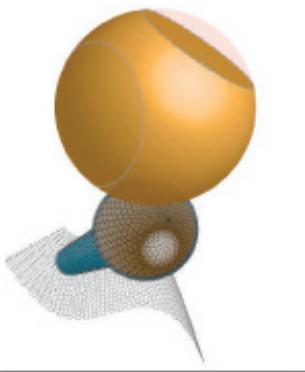


(From left) CFN researchers Eli Sutter and Peter Sutter

and Peter Sutter reported this month on their development of an even more accurate pipette, one with “zepto”-liter— 10^{-21} liter—accuracy.

- As a result of this nano-

pipette, the melting and freezing of crystals can now be studied with near-atomic resolution, to observe the differences between transitions on the nanoscale versus the macroscale. — M.B.



CFN's new nanopipette pictured in action