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DOE to establish two Energy Frontier Research Centers at MIT

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MIT will be home to two of 46 new multimillion-dollar Energy Frontier Research Centers (EFRCs), the White House announced this week.

The EFRCs, which will pursue advanced scientific research on energy, are being established by the U.S. Department of Energy Office of Science at universities, national laboratories, nonprofit organizations and private firms across the nation.

The EFRC program plans to provide \$19 million to fund the Center for Excitonics at MIT, which will be directed by Marc A. Baldo, associate professor of electrical engineering and a principal investigator in the Research Laboratory for Electronics. The center aims to understand the transport of charge carriers in synthetic disordered systems, which hold promise as new materials for converting solar energy to electricity and for electrical energy storage.

The EFRC program also plans to supply \$17.5 million to fund the Solid-State Solar-thermal Energy Conversion Center at MIT, which will be directed by Gang Chen, the Warren and Townley Rohsenow Professor of Mechanical Engineering and director of the Pappalardo Micro and Nano Engineering Laboratories. The center's objective is to create novel solid-state materials for the conversion of sunlight and heat into electricity.

"As global energy demand grows over this century, there is an urgent need to reduce our dependence on fossil fuels and imported oil and curtail greenhouse gas emissions," said U.S. Secretary of Energy Steven Chu. "Meeting this challenge will require significant scientific advances. These Centers will mobilize the enormous talents and skills of our nation's scientific workforce in pursuit of the breakthroughs that are essential to make alternative and renewable energy truly viable as large-scale replacements for fossil fuels."

The 46 EFRCs, each to be funded at \$2 million to \$5 million per year for a planned initial five-year period, were selected from a pool of some 260 applications received in response to a solicitation from the U.S. Department of Energy Office of Science in 2008. Selection was based on a rigorous merit review process using outside panels of scientific experts.

Professor Ernest J. Moniz, director of the MIT Energy Initiative, noted, "We at MIT are extremely pleased to have been awarded leadership of two EFRCs and to be named as sub-awardee for four more. The EFRC program provides an unprecedented commitment to the basic research needed for continuing energy technology innovation-built upon an exemplary process that engaged the national scientific community to set priorities."

EFRC researchers will take advantage of new capabilities in nanotechnology, high-intensity light sources, neutron scattering sources,

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supercomputing, and other advanced instrumentation, much of it developed with DOE Office of Science support over the past decade. They will use these in an effort to lay the scientific groundwork for fundamental advances in solar energy, biofuels, transportation, energy efficiency, electricity storage and transmission, clean coal and carbon capture and sequestration, and nuclear energy.

Of the 46 EFRCs selected, 31 are led by universities, 12 by DOE national laboratories, two by nonprofit organizations, and one by a corporate research laboratory. Sixteen EFRCs, including that of Professor Baldo, are funded through the American Recovery and Reinvestment Act, with the objective of creating jobs and promoting economic recovery in addition to laying the foundation for future energy technologies. Numerous postdoctoral, graduate student, and technical staff positions will be created for the EFRCs.

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