# Georgia Tech Awarded Three Energy Department Grants

Georgia Institute of Technology

Researchers from the Georgia Institute of Technology have been awarded three grants totaling more than $9 million from the U.S. Department of Energy's Advanced Research Projects Agency – Energy (ARPA-E) to develop energy technology solutions.

The three new awards are for projects involving solar fuel generation, power generation from vortices of solar heated air and energy storage.

"Georgia Tech is one of the leading recipients of ARPA-E awards in the nation and these new awards demonstrate Georgia Tech's continued prominence across the entire energy space in developing transformative energy solutions," said Tim Lieuwen, director of Georgia Tech's Strategic Energy Institute.

- Ari Glezer, George W. Woodruff Chair in Thermal Systems and professor in the Woodruff School of Mechanical Engineering, will receive $3.7 million to develop a method to capture energy from "dust devils," wind vortices that harvest the thin layer of hot air along the ground created by the sun. If successful, Georgia Tech's approach could cost 25 percent less than conventional wind and 60 percent less than traditional solar power.
- Asegun Henry, assistant professor in the Woodruff School of Mechanical Engineering, will receive $3.6 million to develop a high-efficiency solar reactor to produce solar fuel. Using liquid metal, the reactor transports heat away from the sunlight-collection point to a chemical reaction zone, minimizing the loss of solar heat. This system could enable cost-effective solar fuels that would be used for transportation and continuous electric power generation.
- Meilin Liu, Regent's Professor in the School of Materials Science and Engineering, will receive $2.1 million to develop a supercapacitor using graphene – a two-dimensional sheet of carbon atoms – that could store energy at 10 times greater density than current technologies. Supercapacitors store energy in a manner similar to a battery, yet can charge and discharge much more rapidly. The Georgia Tech team will improve the internal structure of graphene sheets to store more energy at lower cost.

Energy researchers at Georgia Tech have major strengths in fuels, power generation, distribution and transmission, efficient utilization, policy and economics.

Currently, the Institute is involved in nine projects funded by ARPA-E that cut across the energy space, including carbon capture, smart grid, high-efficiency heat

extraction, power conversion and distribution.

The Strategic Energy Institute at Georgia Tech is an interdisciplinary umbrella organization that brings together a variety of experts from diverse fields at Tech to identify integrated solutions that increase the sustainability, affordability and reliability of the entire energy cycle – from generation to distribution to use.

Georgia Tech's three ARPA-E grants were among 66 cutting-edge research projects announced Nov. 28 by Energy Secretary Steven Chu as part of the department's "OPEN 2012" program. ARPA-E seeks out transformational, breakthrough technologies that show fundamental technical promise but are too early for private-sector investment.

"With ARPA-E and all of the Department of Energy's research and development efforts, we are determined to attract the best and brightest minds at our country's top universities, labs and businesses to help solve the energy challenges of this generation," Chu said.

**Related Links**

- Assistant Profesor Asegun Henry [1]
- Regent'ss Professor Meilin Liu [2]
- Professor Ari Glezer [3]



**Links:**
[1] http://www.me.gatech.edu/faculty/henry-a
[2] http://www.mse.gatech.edu/faculty-staff/faculty/meilin-liu
[3] http://www.me.gatech.edu/faculty/glezer