

Supercomputing time awarded to design transformational lithium air battery

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The Department of Energy announced today that 24 million hours of supercomputing time out of a total of 1.6 billion available hours at Argonne and Oak Ridge National Laboratories have been awarded to investigate materials for developing lithium air batteries, capable of powering a car for 500 miles on a single charge.

Through the Innovative and Novel Computational Impact on Theory and Experiment (INCITE) program, a research team including scientists from Oak Ridge National Laboratory, Argonne National Laboratory and IBM will use two of the world's most powerful supercomputers to design new materials required for a lithium air battery. Lithium-ion batteries, used in today's emerging plug-in hybrid electric vehicles, currently have a range of approximately 40 to 100 miles.

The calculations will be performed at both Oak Ridge and Argonne, which house two of the world's top ten fastest computers.

"Computation and supercomputing are critical to solving some of our greatest scientific challenges," said Secretary Chu. "This year's INCITE awards reflect the enormous growth in demand for complex modeling and simulation capabilities, which are essential to improving our economic prosperity and global competitiveness."

The INCITE program provides a collection of unique computational resources that enable scientists and engineers to conduct cutting-edge research in weeks or months rather than the years needed previously. The use of scientific modeling can accelerate scientific breakthroughs in

areas such as climate change, alternative energy, life sciences, and materials science.

Oak Ridge National Laboratory Director Thom Mason said the battery project was the result of two visits to Oak Ridge in 2009 by IBM's vice president of research. "From those discussions, it became apparent that our partnership had many of the unique capabilities needed to tackle a scientific problem as important and challenging as increasing by more than a factor of 10 the energy stored in batteries for transportation."

"Argonne is committed to developing lithium air technologies," said Argonne Director Eric Isaacs. "The obstacles to Li-air batteries becoming a viable technology are formidable, but the modeling and [simulation](#) capabilities of DOE's supercomputers will help us accelerate the innovations required in materials science, chemistry and engineering."

To learn more about the 2010 INCITE program, visit www.er.doe.gov/ascr/incite/index.html.

Provided by Oak Ridge National Laboratory

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