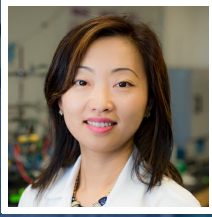


Green Energy Lights the Future



Shirley Meng

Shirley Meng Associate Professor, Department of NanoEngineering

CURRENT RESEARCH

Finding innovative ways to store and convert renewable energy

Energy technology is advancing on all fronts: electric cars that truly have zero CO₂ emissions, smart grid technology engaging residential customers, renewable energy growing worldwide, and large investments in energy efficiency. This is a manifestation of a new societal trend towards energy independence and environmental sustainability. Professor Shirley Meng's research group, Laboratory for Energy Storage and Conversion (i.e. LESC) at the University of California, San Diego Nanoengineering department, has been focusing its efforts on the basic science and applied research for the design and development of new functional nanomaterials and nanostructures for advanced energy storage and conversion applications. Conversion of raw materials into usable energy and storage of the energy produced are common aspects of everyday life. The development of new materials to improve upon current capabilities is a key technological challenge of the 21st century. Advances will create smaller more powerful batteries and will provide a greater ability to harness more sustainable energy sources.

Professor Meng at UCSD pioneers in combining first principles computation with many highly skilled experiments to design and optimize better materials for energy applications. Fully taking advantage of the scientific advancements that have accelerated over the past forty years, LESC relies on the power of supercomputers to predict and simulate material properties and runs fewer and more successful experiments as opposed to the traditional Edisonian way of trial and error. Also extremely helpful are novel instruments that can "see" things at less than one nanometer spatial resolution. These instrumentations based on synchrotron x-...

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AFFILIATION

 University of California, San Diego

EDUCATION

- Postdoc in Materials Science & Engineering, Massachusetts Institute of Technology
- Ph.D. in Advanced Materials for Micro- & Nano- Systems, Singapore-MIT Alliance, (National University of Singapore)
- B.S. in Materials Science & Engineering, Nanyang Technological University of Singapore

AWARDS

- Science Award in Electrochemistry by BASF and Volkswagen, 2014
- UCSD Chancellor's Interdisciplinary Collaboratories Award, 2013
- National Science Foundation (NSF) CAREER Award, 2011
- Graduate Student Award (Materials Research Society), 2003
- Systems on Silicon Manufacturing Co. Pte. Ltd (SSMC) Award, 2002
- and 1 more...

RESEARCH AREAS

Clean Energy, Technology, Materials Science / Physics, Nanotechnology

FUNDING REQUEST

Although the Laboratory for Energy Storage and Conversion is pioneering critical fields of research noticed and supported by the government, the resources provided thereof are inadequate to fulfill the rapidly increasing demands of the field. More students each year would like to join the research efforts but are prevented from doing so because of the insufficient resources. Your contributions will therefore play a key role in thrusting the lab forward, to break through any challenges and accelerate advancements in energy technology. Donations will help fund lab operation costs and support more than 20 team members.