

DOE Energy Frontier Research Centers (EFRC) Ten at Ten Awards

To mark the ten-year anniversary of the EFRC program, the DOE Office of Basic Energy Sciences selected ten awardees that embody the extraordinary impact that the EFRCs have had on people, scientific ideas, and technologies and tools.

People Awards

- **Erin L. Ratcliff**
[Center for Interface Science: Solar Electric Materials \(CISSEM\)](#)
For embracing multi-disciplinary team science to characterize and control the chemical and physical interactions between electrical contacts and active layers in emerging solar energy technologies.
- **Michael Naguib**
[Fluid Interface Reactions, Structures and Transport Center \(FIRST\)](#)
For developing a new family of two-dimensional materials based on transition metal carbides and nitrides that have proven to be transformative battery and supercapacitor electrode materials.
- **Katlyn M. Turner**
[Materials Science of Actinides \(MSA\)](#)
For her dedication to EFRC research from undergraduate through graduate studies, transferring research knowledge and techniques between institutions, and maintaining strong ties between collaborating groups.

Scientific Ideas Awards

- **Mercouri Kanatzidis, Robert P. H. Chang**
[Argonne Northwestern Solar Energy Research \(ANSER\)/Center for Light Energy Activated Redox Processes \(LEAP\)](#)
For the first demonstration of all-solid-state solar cells using halide perovskite materials.
- **Jeffrey R. Long, Thomas M. McDonald, Douglas A. Reed, Rebecca L. Siegelman, C. Michael McGuirk**
[Center for Gas Separations \(CGS\)](#)
For the discovery of cooperative adsorption in metal-organic frameworks.
- **Candace Haigler, James Kubicki, B. Tracy Nixon, Hugh O'Neill, Alison Roberts, Ming Tien, Yaroslava Yingling, Jochen Zimmer**
[Center for Lignocellulose Structure and Formation \(CLSF\)](#)
For elucidating the structure and function of plant cellulose synthase and cellulose synthesis complex.
- **Carrie Siu, Yuhchieh Lin, Ieuan Seymour, Jatin Rana**
[NorthEast Center for Chemical Energy Storage \(NECCES\)](#)
For developing a fully rechargeable multi-electron 2-lithium battery cathode.

Technologies and Tools Awards

- **Paul Dauenhauer**
[Catalysis Center for Energy Innovation \(CCEI\)](#)
For developing the quantitative carbon detector 3D-printed metal catalytic microreactor.
- **Harold Kung, Cary Hayner, Mark Hersam**
[Center for Electrochemical Energy Science \(CEES\)](#)
For developing graphene encapsulation of lithium-ion battery anodes and cathodes.
- **David Bierman**
[Solid State Solar Thermal Energy Conversion Center \(S³TEC\)](#)
For developing an ultra-high efficiency thermophotovoltaic power conversion device.