Application Process
To apply for this summer research opportunity, complete the application at

http://remrsec.mines.edu/reu.htm

Due to the competitive nature of this opportunity, the following guidelines have been established:

1. The Review Committee will only consider complete applications. Incomplete applications will not be considered under any circumstances.

2. A complete application consists of a student’s
   a. Online Portfolio
   b. Academic Transcripts
   c. Two Letters of Recommendation

3. Participants will be selected on a rolling basis. Thus, early applicants identified as strong candidates will be immediately matched to faculty mentors and research opportunities.

4. Applications will not be accepted or reviewed after January 16, 2012.

Facilities
Students can synthesize, process, and characterize renewable energy materials, as well as perform non-destructive, in-situ microscopy under a range of extreme conditions. Computational investigations and diagnostic studies can also be explored.

1. New Synthesis Laboratory
2. Center for Solar and Electronic Materials (CSEM)
3. PECVD Cluster Tool
4. RF/DC Sputter Machine
5. Thermal Evaporator
6. Sun Constellation Cluster (SCC)
7. Colorado Energy Research Institute Characterization Laboratory (CERI-CL)
9. Colorado Fuel Cell Center (CFCC)
10. Golden Energy Computing Organization (GECO)
11. Microintegrated Optics for Advanced Bioimaging and Control (MOABC)
12. Electron Microscopy Laboratory
13. Nuclear Magnetic Resonance Laboratory

Additional Information
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DMR Award 1063150
Program Description

The REMRSEC REU program invites exceptional undergraduate math, science, and engineering students to participate in a ten-week summer research program addressing fundamental materials issues related to the science and technology of renewable energy. These highly interdisciplinary studies focus on multiple areas that are open to all materials science, engineering, physics, chemistry, mathematics, and computer science majors that will complete their undergraduate degree in December 2012 or later.

Program Goals

The goals of this REMRSEC REU program are to provide students an interactive, encouraging, and multi-level research experience that can be drawn upon when making decisions about advanced education and future careers in renewable energy, in addition to nurturing a greater sensitivity of our place and role in the world in which we live.

Selection

Selections are based on a student’s academic standing, faculty recommendations, and a strong personal statement of interest. Due to the competitive nature of this REU, application materials will be carefully reviewed and ranked. A minimum overall Grade Point Average of 3.00 out of 4.00 is required. Students from underrepresented groups and institutions are strongly encouraged to apply.

Intellectual Merit

An interdisciplinary team of approximately 30 faculty from the Colorado School of Mines, as well as staff from the Colorado Energy Research Initiative and the National Renewable Energy Laboratory, mentor students.

Research projects address:
- Performance of Next-Generation Photovoltaic Devices
- Microstructural Design of Composite Membranes
- Hydrogen Storage in Clathrate Hydrates
- Social and Ethical Implications of Climate Change, Renewable Energy, Sustainability, and Education
- Hybrid Energy Systems for Oil Shale Production
- Optimizing Computational Tools for Energy Science

Weekly technical seminars span:
- Photovoltaics
- Energy Storage Materials
- The Role of Catalysts in Fuel Cells
- Computational Energy Science
- Challenges and Opportunities with Biofuels

Professional development sessions cover:
- Ethics & the Responsible Conduct of Research
- Learning, Teaching, & Working Across the Generations
- Being a Role Model, Finding a Mentor
- Graduate Schools & Fellowship Opportunities
- Careers in Renewable Energy

“Snapshots” sessions allow students to:
- Informally share their research results in an open learning environment.
- Enhance and improve public speaking and communication skills.

Broader Impacts

Students participate in research discussions, laboratory tours, social activities, and an end-of-summer joint poster session with other nearby REU students in the National Nanotechnology Infrastructure Network (NNIN) program at the University of Colorado in Boulder and the Science Undergraduate Laboratory Internship (SULI) program at the National Renewable Energy Laboratory in Golden.

Top 10 REU Features

1. Receive a $4500 stipend.
2. Perform cutting-edge research in renewable energy with a community of internationally recognized scientists and engineers.
3. Utilize our travel funds to present your summer research at upcoming national conferences.
4. Relax and enjoy your journey ... we pay for your roundtrip travel expenses from your home institution to the Colorado School of Mines.
5. Get a good night’s sleep ... we pay for your campus housing that is convenient to your research center, restaurants and shops in downtown Golden, large supermarkets and shopping malls, and public transportation.
6. Develop hands-on experience with energy storage systems, fuel cells, photovoltaic modules, and other renewable energy devices.
7. Attend scientific luncheons and seminars that address computational and experimental techniques used in materials science, research presentation skills, intellectual property rights & patents, and scientific report writing.
8. Enjoy organized recreational activities in the majestic Rocky Mountains.
9. Learn tips on selecting a graduate school, research advisor, and thesis topic while exploring careers in renewable energy.
10. Tour private companies and national labs actively involved in renewable energy and alternative energy technologies.