Conference Call / Videoconference

During the months of January and February 2011, institutions of higher education can learn more about REMRSEC faculty, staff, laboratory facilities, student research projects, housing, recreational activities, and other program opportunities during a 45-minute conference call or videoconference. Please contact Stephanie Pomponio at

Email: spomponi@mines.edu
Telephone: (303) 273-3756

in the REMRSEC Program Office for details on how to setup this discussion. All interested students and their faculty advisors are encouraged to participate.

Potential Discussion Items

- Overview of the REMRSEC Program
  Professor Craig Taylor (Project Director)

- Elements of the REMRSEC REU
  Professor Chuck Stone (REU Director)

- Materials for Next-Generation Photovoltaics
  Professor Reuben Collins & Team Members

- Advanced Membranes for Energy Applications
  Professor Andrew Herring & Team Members

- Energy Storage in Clathrate Hydrate Materials
  Professor Carolyn Koh & Team Members

- REMRSEC Laboratories and Research Facilities
  Dr. Joe Beach

- Applying to the REMRSEC REU
  Professor Chuck Stone (REU Director)

- Q&A with Former REMRSEC REU Students

- Any additional topics of interest

Application Materials

To apply for the REMRSEC REU, complete the online application at

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

Online Applications,
Academic Transcripts, and
Two Letters of Recommendation
must all be received by
March 1, 2011

Thin yellow layers of amorphous silicon on clear plastic, used in flexible solar cells.

For additional information, contact:

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2011 REMRSEC REU Summer Program
Colorado School of Mines
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**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.

**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.

**3 Research Focus Areas**

The Colorado School of Mines has established the first NSF-funded research center dedicated solely to renewable energy. Working in close collaboration with the National Renewable Energy Laboratory, the Center tackles three very important engineering and science problems in the renewable energy field:

**Materials for Next-Generation Photovoltaics:**

Unique nanoscale materials have the potential to provide more efficient, less expensive photovoltaic devices. The REMRSEC group designs and conducts experiments that focus on engineering particles into nanoscale materials that optimize the conversion of solar radiation into electrical current. Computer simulations support these experimental approaches in the Center’s labs.

**Advanced Membranes for Energy Applications:**

Contemporary ion-conducting membranes are a weak link in fuel cell performance. To improve electrochemical energy storage and conversion, the Center fabricates novel, composite membranes by combining materials together with dramatically different ionic transport characteristics. These advanced membrane designs may enhance the production of hydrogen or alternative liquid fuels and improve the generation of electricity in fuel cells.

**Energy Storage in Clathrate Hydrate Materials:**

Innovation in energy storage is critical to the expansion of renewable technologies. Clathrates are a special class of solid materials whose crystalline structures contain large, open cages capable of storing large, concentrated quantities of gas produced through renewable processes. REMRSEC researchers are studying two types of clathrate compounds as potential materials for hydrogen and methane gas storage.

**Top 10 REU Features**

- Perform cutting-edge research in renewable energy with a community of internationally recognized scientists and engineers.
- Receive a stipend of **$4500**. Students living more than 40 miles from campus are eligible to apply for additional moving and living support.
- Develop hands-on experience with fuel cells, photovoltaic modules, wind turbines, and other renewable energy resources.
- Attend scientific luncheons and seminars addressing computational and experimental techniques used in materials science, research presentation skills, intellectual property rights & patents, and scientific report writing.
- Opportunities to present summer research results at an upcoming national conference.
- Get tips on selecting a graduate school, research advisor, and thesis topic.
- Explore careers in renewable energy.
- Enjoy organized recreational activities in the majestic Rocky Mountains.
- Tour private companies and government labs actively involved in alternative energy technologies.
- Participate in an environmental awareness program that promotes a “greener”, renewable, and sustainable lifestyle.