

RET Meetings at NSTA

March 29th – March 30th
St. Louis, Missouri
<http://www.nsta.org/conference>

NSF Research Experiences for Teachers Network Meeting

Coordinator: Claire Duggan (Northeastern University)

This informal session provides an opportunity for networking among former RET participants and program administrators representative of a variety of programs and geographic locations; provides an opportunity for sharing classroom connections, successes, and obstacles "back in the classroom"; and discusses useful professional development and other programmatic strong points.

Agenda

Welcoming Remarks

Claire Duggan - Northeastern University (c.duggan@neu.edu)

Brant Miller - South Dakota School of Mines and Technology (SDSM&T)
(bmiller@dSDK12.net)

Jay Dubner – Columbia University (jd109@columbia.edu)

Participant Introductions

Please introduce yourself, # of years teaching, RET program you participated in, where you are currently teaching (grades/subjects), and/or your role in the RET program.

Lesson Development

Participants are encouraged to share lessons developed. Please bring copies for distribution to fellow participants.

Discussion/ **Matthew Corcoran (moderator)**

Mathew Corcoran – RET NU 2005/2006

Professional development should engage science educators in transformative learning experiences that confront deeply held beliefs, knowledge, and habits of practices. Professional development programs should maintain a sustained focus over time, providing opportunities for continuous involvement.

- Some argue that PD needs to focus on the content being taught and how to teach it. Others argue for PD that broadens teachers' experience. Did RET achieve a good blend of pedagogy, content application (nature of science and engineering as our content), and a novel experience to confront preconceptions of science?
- Ratio – RET provides a sustained focus of activity for teachers (high activity), how can we provide support for ever-increasing achievement of the teachers in the program.

We have embarked on a nationwide implementation of Engineering into K-12 classrooms.

- What do students understand to be the relationship between Science and Engineering? (This should probe a bit of the teachers' concepts as well, and how it changed.)
- Do you think this effort is realistic?
- How might understanding the Engineering Design process strengthen your skills as a STEM educator?
- How are engineering thinking skills integrated into your lessons?

In many schools, engineering is the new “shop” class. Can engineering come out of the ghetto and into secondary academics?

Next Steps – Looking forward to Boston 2008

Meeting Notes

Research Experience for Teachers (RET) Share-a-Thon

Presenter: Brant Miller (Douglas Middle School: Box Elder, SD)

RET programs, found at many universities throughout the country, are changing the face of science education in the United States and abroad. This presentation will provide attendees with the opportunity to get information on upcoming RET programs and hear and discuss impacts of various programs from past participants.

Research Projects/Participants

SDSM&T RET Site: *Inspiring Educators in Rural America through Research*
 NSF # 0502310 awarded to the Department of Chemical and Biological Engineering.
<http://ret.sdsmt.edu> **PI – Robb Winter** PhD, **Co-PI – Brant Miller** MS

- Laser Deposition of Hydroxyapatite $\text{Ca}_5(\text{PO}_4)_3\text{OH}$ to Titanium-Alloy (Ti-6Al-4V): A Study of Interface Properties/Mark Peacock **(1)**

- Separation of Biopharmaceuticals/Jane Roseland **(2)**
- Transformation of *Pseudomonas aeruginosa* 8821 with plasmid DNA of recombinant 1801/Laurel Schamber **(3)**
- Molybdenosis Field Study in North Cave Hills Region Impacted by Abandoned Uranium Mines/Christina Bosse **(4)**
- Investigation of Liquid Metal Embrittlement of MP-159/Chuck Standen **(5)**
- Transfer Function Tests on Self Healing Biomimetic Structures/Darwin Daugaard **(6)**
- Tangential Flow Ultrafiltration for Recovery of Biopharmaceutical Products from Agricultural Plant Extracts/Barb Wielenga **(7)**
- The Development of R-mesh Refinement Methods to Support Plasma Dynamics Simulations/Jeff Berndt **(8)**
- Image Processing and Computer Vision/Rebecca Lane **(9)**
- Effect of Antimicrobial Agent Chlortetracycline During Swine Manure Treatment/Mark Farrand **(10)**

Northeastern University *Research Experiences for Teachers* (www.ret.neu.edu)

NSF # **0227577** **Claire Duggan**, Program Director, Associate Director, The Center for STEM Education

- *pfs* is a candidate persister gene in *Escherichia coli*/Rocco Cierri **(11)**
- The Effect of Cell Removal on the Young's Modulus for Joint Compound-Filled Aluminum Honeycomb Structures/Carrie-Anne Sherwood **(12)**
- Preliminary Cytotoxicity Tests for Two Potential Biopassivation Coatings for Neurological Implants/Emily Simpson **(13)**

Columbia University; Summer Research Program for Science Teachers

(<https://www.ScienceTeacherProgram.org>)

NSF # **0608676** **Samuel C. Silverstein, M.D.**, Program Director *John C. Dalton Professor, Department of Physiology and Cellular Biophysics and Medicine*; **Jay Dubner, M.S.**, Program Coordinator *Department of Physiology and Cellular Biophysics*

- Phytoestrogens and estrogen-metabolizing genes/ Michelle Seeley **(14)**
- RAD52 splice variants affect homology-directed DNA repair/ Margaret Savitzky **(15)**

- The influence of various proteins on DNA DSB repair pathway utilization/ Rachel Lytle **(16)**
- MassTag PCR: An effective tool for resolving the infectious agents involved in influenzalike illness/ Kathleen Rucker **(17)**

University of Kansas Medical School; Kansas Department of Biochemistry Principal Investigator: Dr. Mark Fisher

- Normal Mode Flexible Fitting of Protein Data/ Richard Kaufman **(18)**