



MRSEC Directors Meeting
June 24, 2010
Education Directors Network

Education Directors Network

- Events since MRSEC Directors Meeting Oct. 2009
 - Broadening Participation Meeting
 - MIT, Nov 2009
 - REU Assessment Workshop
 - U Chicago, May 2010
 - Joint Annual Meeting (JAM) – NSF HRD
 - Washington D.C., June 2010
- Projects
 - MRSEC Cross-site REU Assessment- Pilot Summer 2010
 - MRSECs participating in the Netway project
 - MRSEC Science Kit Inventory project
- Future
 - Informal Education assessment project

Broadening Participation Meeting

MIT, November 2009

Meeting Goals

- **Review outcomes** from October 2008 MRSEC Education Directors Meeting
 - Dan Steinberg, Princeton University
- **Increase** the education community's knowledge **of diversity issues, challenges and best practice strategies**
 - **Winston Soboyejo** -Professor of Mechanical and Aerospace Engineering, Princeton University
 - **Isaiah Warner** - Vice Chancellor for Strategic Initiatives , Boyd & Philip W. West Professor of Analytical & Environmental Chemistry, Louisiana State University
 - **Mark Hernandez** - Faculty Director for Colorado Diversity Initiative , Professor Civil, Environmental and Architectural Engineering, Louisiana State University
 - **Charles (Chuck) Wade** Senior Scientist , Scientific Services, IBM Almaden
 - **Dolores Miller** Senior Engineer/Scientist Materials Analysis and Characterization, IBM Almaden
- **Introduce** the education community to the research-based approach to planning, implementing and using **evaluation in a MRSEC context**
 - **William Trochim**- Professor of Human Ecology, Director of Evaluation, Weill Cornell Clinical and Translational Science Center, Director of Evaluation for Extension and Outreach, Cornell University

Broadening Participation Meeting

MIT, November 2009

Winston Soboyejo – Princeton University

- Diversity in Materials Science and Materials Science Education
- What works
 - Programs that integrate research and education
 - » Teams Faculty, Education Directors and K-12 teachers
 - Princeton University Materials Academy (P.U.M.A)



Broadening Participation Meeting

MIT, November 2009

Isaiah Warner – Louisiana State University

- Increasing Diversity in STEM Education
 - LSU African American Chemistry Graduate Student Community Success-
 - » Undergraduate LA-STEM, HHMI

ACADEMIC SUCCESS



- Internal and External Support (1990's)
 - » Cooperative Assistantships for HBCU students (1991), Fellowships for African American Doctoral Students (1994)
 - » External (McNair, GEM, NSF, NIH)
 - » Minority Infrastructure in the 90's
 - » OMA, AACC, BFSC, many student organizations
 - Intercampus initiatives
 - » Vice Provost for Diversity
- Success Factors- mentoring and support, proximity of HBCU's, critical mass, self-sustaining recruiting, employability

Broadening Participation Meeting

MIT, November 2009

Mark Hernandez – University of Colorado, Boulder

- NSF AGEP and Colorado Diversity Initiative (CDI)
 - CDI supports the consolidated effort for agency funded centers, programs, sites, faculty
 - » organize, synchronize, communicate, and leverage
 - » to transform a big R1 school in the mountain west

While the climate for diversity is not ideal...



...in Colorado the ice is starting to melt



Broadening Participation Meeting

MIT, November 2009

– Chuck Wade and Dolores Miller – IBM Almaden Research Center

- Diversity in NSF funded Academic – Industrial Partnerships
 - Industrial experience can be a significant factor in materials science education
 - Partnership with CPIMA and NSF GOALI grant with San Jose State University
- Visit and recruit institutions with high URMs populations
- Recruit at conferences with URMs and undergraduate education focus
- Internships for students with disabilities

Evaluation and MRSECs

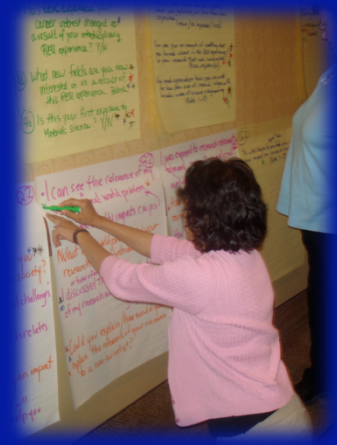
MIT, November 2009

- **William Trochim**- Cornell University
 - Evaluation to MRSEC Education Programs and Netway Project
 - Systems Evaluation of Science, Technology, Engineering and Mathematics (STEM) education programs
 - Opportunity for MRSECs to create , manage and share evaluations plans across centers, including all logic models from the Princeton meeting.
 - Participating Centers since 2008-Cornell, U Chicago, U Maryland, Yale, U Minnesota Penn State, UCSB, U Nebraska, U Washington



Meeting Goals

- **Familiarize** Education Directors about the **current research** that can inform REU programs
- **Introduce and familiarize** Education Directors to the online **URSSA** platform and its **core REU assessment questions**.
- **Introduce and familiarize** Education Directors to **SRI International REU assessment tool**
- **Develop questions** that will address the potential student **impact** of working in a **MRSEC environment** during the summer.
- **Produce MRSEC REU assessment questions**



REU Assessment Workshop

May 10, 2010

- Christine Jones and Christine Broadbridge Facilitators
 - Review MRSEC REU Logic Model
- Sandra Laursen
 - University of Colorado, Center to Advance Research and Teaching in the Social Sciences (CARTSS), Ethnography & Evaluation Research (E&ER)
 - **Undergraduate Research Student Self-Assessment (URSSA)**
- Jongwon Park
 - Associate Director of Science and Technology Policy Program at SRI International, Senior Research Fellow of Center for International Science and Technology Policy at George Washington University.
- Small group Discussion of Literature Review
 - Pre-workshop reading assignment
 - 16 articles on the topics included: REU, productive research environments, scientific experiences and diversity, academic scientific productivity, determinants of successful scientists
 - Breakout sessions
 - Research questions development ,
 - Assessment questions discussion and creating MRSEC REU

Why are we doing this work?

- National Academy of Science: *Looking Back Moving Forward*
 - Programs that are **exemplary in practice** are those that can be targeted for **rigorous, professional evaluation**. Also these programs can be examined for potential replication at other MRSEC Centers
 - “What is the **value added** to students participating in a **MRSEC REU**” and “**How do we assess that impact.**”



MRSEC Cross-site REU Assessment

MRSEC Centers:

- require **outstanding research quality, intellectual breadth, interdisciplinarity,** flexibility in responding to new research opportunities, support for research infrastructure, and foster the integration of **research** and **education** in the **materials field**;
- address **fundamental, complex problems** of intellectual and societal importance,
- contribute to national priorities by fostering active collaboration between academia and other sectors, and
- constitute a national network of university-based Centers in materials research.

NSF JAM 2010

June 6-9 Washington D.C.

- Attend JAM Session and Staff MRSEC Booth
 - Network with PI's and the leadership teams of HRD awards (ADVANCE, RISE, TCUP, HBCU-UP, RDE, ABP)



MRSEC Education Projects 2010-2011

- Analyze output REU assessment data
- MRSEC Science Kit Inventory project
 - MRSEC generated kits
 - Inventory list made available to PREM, MRSEC.org
- Future
 - Possible cross-center assessment
 - Informal science education program?
 - Next Education Directors Meeting
 - MRS Spring 2011 ?
 - Joint meeting with NSECs, NNINs, PREMs?

