

National Science Foundation Engineering Research Centers

## ERC 2008 Annual Meeting

December 3-5, 2008

**Hyatt Regency Bethesda**

One Bethesda Metro Center (7400 Wisconsin Ave)

Bethesda, MD Tel: 301-657-1234

### DRAFT AGENDA

As of December 1, 2008

## MEETING THEME: Opportunities for Innovation and Collaboration

### WEDNESDAY, December 3, 2008

#### Annual Meeting – Day One

#### New Center Orientation and NSF Session

7:30am – 5:30pm Registration and Attendee Services

7:30am – 8:30am Breakfast and Networking

8:30am – 10:30am **New Center Orientation – New-ERC Directors/Deputy Directors** [Staff of existing ERCs welcome to attend (optional)]

	<i>Co-moderators: <b>David McLaughlin</b> (Director, U. Massachusetts CASA) and <b>Khalil Najafi</b> (Deputy Director, U. Michigan WIMS)</i>
8:30 – 8:40	Welcoming Remarks and Introductions – <b>D. McLaughlin</b>
8:40 – 8:55	Leadership ( <b>D. McLaughlin</b> and <b>K. Najafi</b> )
8:55 – 9:10	Discussion and Q&A
9:10 – 9:25	Strategy ( <b>D. McLaughlin</b> and <b>K. Najafi</b> )
9:25 – 9:40	Discussion and Q&A
9:40 – 9:55	Operations ( <b>D. McLaughlin</b> and <b>K. Najafi</b> )
9:55 – 10:05	Discussion and Q&A
10:05 – 10:20	Innovation/education (outcomes) ( <b>D. McLaughlin</b> and <b>K. Najafi</b> )
10:20 – 10:30	Discussion and Q&A, Wrap-Up

8:30am – 10:30am **New Center Orientation – New-ERC Administrative Directors/Financial Managers** [Staff of existing ERCs are welcome to attend (optional)]

	<i>Co-moderators: <b>Janice Brickley</b> (AD, U. Massachusetts CASA) and <b>Kevin Costa</b> (AD, UC-Berkeley SynBERC)</i>
8:30 – 9:00	NSF/ERC Resources Overview (ERC library, ERC Association Web site, Best Practices Manual) ( <b>Janice Brickley</b> )
9:00 – 9:30	Top 10 Tips from Best Practices Manual Chapter 9, Multi-University Centers ( <b>Janice Brickley</b> )
9:30 – 10:00	Building your data system: SynBERC and SOPS websites, and a sample “financial dashboard” ( <b>Kevin Costa</b> and <b>Charanjeet Kaur</b> , AD, Rutgers SOPS)
10:00 – 10:30	Q & A period (Annual Report Guidelines, ERCWEB, Planning, etc.)

8:30am – 10:30am **New Center Orientation – New-ERC Industrial Liaison Officers** [Staff of existing ERCs are welcome to attend (optional)]

	<i>Co-moderators: <b>Hugh Grinolds</b> (ILO, Colorado State EUV) and <b>Mike Gust</b> (ILO, U. Minnesota CCEFP)</i>
--	---------------------------------------------------------------------------------------------------------------------

8:30 – 8:45	Welcoming Remarks and Introductions
8:40 – 9:00	Snapshot of two new ERCs (membership agreements, IP, etc.) – Future Renewable Energy Delivery ( <b>Mark Johnson</b> , FREEDM ERC ILO); Revolutionizing Metallic Biomaterials ( <b>Wayne Szafranski</b> , ERC-RMB ILO)
9:00 – 9:30	Lessons Learned from Gen-2 ERCs: EUV ( <b>H. Grinolds</b> ) and CCEFP ( <b>M. Gust</b> ) ; contrast with Gen-3 features & expectations
9:30 – 10:20	Discussion & brainstorming
10:20 – 10:30	Wrap-up

8:30am –10:30am **New Center Orientation – New-ERC University Education Program**  
**Directors** [Staff of existing ERCs are welcome to attend (optional)]

	<i>Co-moderators:</i> <b>Beth Tranter</b> (Asst. Director of Research Education and Development, Va Tech)
8:30 – 8:40	Welcoming Remarks and Introductions
8:40 – 9:30	Overview of strategic planning for Education programs, including "Do's and Don'ts" for new ERCs – <b>Beth Tranter</b>
9:30 – 10:15	Formulating a Center-specific Hypothesis on Educating Creative and Innovative Engineers – <b>John Daniels</b> (NSF AAAS Fellow), discussion leader
10:15 – 10:30	Wrap-up

8:30am –10:30am **New Center Orientation – New-ERC Pre-college Education Program**  
**Directors** [Staff of existing ERCs are welcome to attend (optional)]

	<i>Moderator:</i> <b>Claire Duggan</b> (K-12 Outreach Director, Northeastern U. CenSSIS)
8:30 – 8:40	Welcoming Remarks and Introductions
8:40 – 9:20	Overview of some of the current K-12 STEM program efforts – <b>Claire Duggan</b>
9:20 – 10:00	“Carousel” (quick snapshots–6 min @) of current plans by new centers, with discussion & comments from all
10:00 – 10:30	Characteristics of effective program models and discussion of ways to incorporate those components in each ERC’s plans

8:30am –10:30am **New Center Orientation – New-ERC Research Thrust Leaders** [Staff of existing ERCs are welcome to attend (optional)]

	<i>Co-moderators:</i> <b>Jim Weiland</b> (Thrust Leader, USC BMES); <b>Drew Endy</b> (Thrust Leader, UC-Berkeley SynBERC); and <b>Robert Gordenker</b> (Testbed Technical Director, U Michigan WIMS)
8:30 – 8:40	Welcoming Remarks and Introductions –
8:40 – 9:00	Overview and Lessons Learned – <b>Jim Weiland</b>
9:00 – 9:20	Lessons Learned in Thrust Management – <b>Drew Endy</b>
9:20 – 9:40	Testbeds and Systems Integration – <b>Robert Gordenker</b>
9:40 – 10:30	Open discussion

8:30am – 10:30am **New Center Orientation – New-ERC Students** [Students & staff of existing ERCs welcome to attend (optional)]

	<i>Co-moderators:</i> <b>Anthony Hopf</b> (SLC President, U. Mass-Amherst CASA) and <b>Eric Jayjock</b> (SLC Chair, Rutgers C-SOPS)
8:30 – 8:50	Welcoming Remarks and Introductions – <b>Anthony Hopf</b> and <b>Eric</b>

	<b>Jayjock</b>
8:50 – 9:20	Building an Effective SLC Website – <b>Deborah Murphy</b> (SLC member, CMU/Pitt QoLT ERC) – includes 10 min Q&A
9:20 – 9:50	"How to Become an Effective Student Voice in an ERC" – <b>Alyssa Burger</b> (Education & Outreach Director, U. Minn. CCEFP) and <b>Keith Wait</b> (SLC Pres., CCEFP) – includes 10 min Q&A
9:50 – 10:20	“How to Plan a Retreat to Better Connect the Graduate Students” – <b>Tracy Tsai</b> (SLC President, Princeton MIRTHE)
10:20 – 10:30	Open discussion with presenters

10:30am – 11:00am **Break**

11:00am – 12:00pm **Plenary Session I: NSF Session (Part A)**

11:00 – 11:10	Welcome & Meeting Plan – <b>Lynn Preston &amp; Court Lewis</b>
11:10 – 11:50	NSF & ERC Program Update – <b>Lynn Preston</b>
11:50 – 12:00	<b>Lynn Preston</b> introduces the incoming NSF AD for Engineering, <b>Dr. Thomas Peterson</b> , currently Dean of Engineering, University of Arizona

12:00pm – 1:00pm **Lunch**

1:00pm – 2:15pm **Plenary Session I: NSF Session (Part B)**

*Moderator: Allen Soyster, NSF*

1:00 – 1:15	<i>Speaker:</i> Observations on the Gen-3 ERC Paradigm – <b>Michael Reischman</b> , Deputy Assistant Director, Directorate for Engineering, NSF
1:15 – 1:35	Spotlight on ERC for Biorenewable Chemicals – <b>Brent Shanks</b> , Center Director, Iowa State University
1:35 – 1:55	Spotlight on Smart Lighting ERC – <b>E. Fred Schubert</b> , Center Director, Rensselaer Polytechnic University
1:55 – 2:15	Spotlight on ERC for Future Renewable Electric Energy Delivery and Management – <b>Alex Huang</b> , Center Director, North Carolina State University

2:15pm – 2:45pm **Break**

2:45pm – 4:15pm **Breakout Session I: Improving the Current & Future ERC**

Building, Sustaining, & Assessing Realistic Precollege Education Programs Within the Scope of an ERC <i>Moderator: Jorge Rocca</i> (Center Director, Colorado State EUV ERC) and <i>Claire Duggan</i> (K-12 Outreach Director, Northeastern U. CenSSIS) <i>Topics:</i> precollege education program mission, expected outcomes, staffing & funding, metrics and assessment	All: CD/DDs, EDs, SLC, NSF PD	<i>Speakers:</i> <b>Shaun Meehan</b> (former Poudre High School student researcher at EUV, now a technician at Antarctic research station) on involvement of H.S. students in ERCs; <b>Rocco Cieri</b> (RET, Northeastern U.- Teacher, Medford High School) on “Inviting K-12 Teachers onto Your Research Team”; <b>Giselle Ragusa</b> (USC BMES Associate Director for Education and Outreach Assessment) on assessment strategies; <b>Tom Carroll</b> and <b>Elizabeth Foster</b> (National
----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-------------------------------	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

		Commission on Teaching and America's Future) on "Creating a Genuine Learning Organization"
"Operationalizing" the Research Program, from Strategic Plan to Thrust to Project (and Back) <i>Moderator: David McLaughlin</i> (Director, U. Mass CASA) <i>Topics: project selection and termination, role of thrust leaders, role of industry, role of testbeds</i>	CD/DDs, F/TLs, NSF PD	<i>Speakers: William Barberg</i> (President, Insightformation) and <b>Kim Stelson</b> or <b>Mike Gust</b> (Director and ILO, U. Minnesota CCEFP) on "Strategic planning experience in the CCEFP using the Insightformation software tool"; <b>David McLaughlin</b> and <b>Michael Zink</b> (Deputy Director and Thrust Leader, CASA) on "Strategic planning experience in the CASA ERC"
How to Engage Small Business in the Innovation Process <i>Moderator: Joseph Montemarano</i> (ILO, Princeton MIRTHE)	CD/DDs, ILOs, F/TLs, IND, NSF PD	<i>Speakers: (1) Larry Schmitt</i> , Inovo Technologies; (2) <b>Rathindra DasGupta</b> , NSF Industrial Innovation & Partnerships Div., summarizing SBIR/ERC workshop; (3) <b>Doug Hirt</b> (Director, Clemson CAEFF) and <b>Earl Wagener</b> (Tetramer Technologies), SBIR/ERC PIs; (4) <b>Joe Montemorano</b> describing specific MIRTHE experiences with small companies
Linking Center-wide Strategic Planning, Performance Assessment, & Reporting <i>Moderator: Barb Kenny</i> , NSF PD	ADs, CD/DDs, NSF PD	<i>Speakers: Barb Kenny</i> on NSF's response to the feedback gained in the 2007 annual meeting; <b>Mahnaz Moallem</b> (Prof. of Instructional Technology, UNC-Wilmington) on integrating assessment into center-wide strategic planning; and <b>Margaret Murnane</b> (Deputy Director, EUV ERC) on Recasting the Annual Report as a strategic planning tool

4:15pm – 4:30pm      **Break**

4:30pm – 5:30pm      **Plenary Session II: Keynote Address**

*Moderator: Lynn Preston*

4:30 – 5:30	<i>Speaker: Bob Metcalfe</i> , Ethernet inventor, 3Com founder, National Technology Medalist, and now venture capitalist at Polaris Venture Partners, on "Enernet: Lessons from Internet History About Meeting Global Needs for Cheap and Clean Energy" – Introduction by <b>Linda Griffith</b> (Director, MIT BPEC) – includes 15 minutes for audience Q&A
-------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

5:30pm – 7:00pm      **Welcome Reception for All**

## **THURSDAY, December 4 2008**

### **Annual Meeting – Day Two Closed Meetings and Student Retreat**

7:00am – 5:00pm Registration and Attendee Services

7:00am – 8:00am Breakfast and Networking

8:00am – 10:00am **Plenary Session III**

*Moderator:* **Lynn Preston**

8:00 – 8:10	Plan for the Day – <b>Court Lewis</b>
8:10 – 9:10	<i>Speaker:</i> <b>Dr. Bernard Amadei</b> , founder, Engineers Without Borders-USA (U. Colorado–Boulder), on “Engineering Innovation and Research with a Human Face” – introduction by <b>Lynn Preston</b> – 10 minutes Q&A
9:15 – 9:35	Spotlight on ERC for Integrated Access Networks – <b>Nasser Peyghambarian</b> , Center Director, University of Arizona
9:40 – 10:00	Spotlight on ERC for Revolutionizing Metallic Biomaterials – <b>Jagannathan Sankar</b> , Center Director, North Carolina A&T State University

10:00am – 10:15am **Break**

10:15am – 2:45pm **Student Retreat**

*Organizers:* WIMS, **Leo McAfee**, Education/Outreach Director, and SLC co-leaders **Tzeno Galchev** and **Angelique Johnson**

10:15 – 12:00	<i>Morning Session (NSF staff invited for this session only)</i>
10:15 – 10:20	SLC Introductions and Welcome
10:20 – 10:25	Welcome & remarks by <b>Lynn Preston</b> , NSF ERC Program Leader
10:25 – 10:45	Comments by <b>Bernard Amadei</b> and Q&A
10:45 – 11:00	Welcome and SLC/ERC publicity “pitch” by <b>Courtland Lewis</b> , ERC Program communications consultant
11:00 – 12:00	Opening address by <b>Dr. Larry Schmitt</b> , Inovo Technologies, on “Innovation and the Implementation of New Technologies”
12:00 – 12:45	Working Lunch
12:45 – 1:45	<b>Ms. Shirley Collier</b> , CEO/Founder of Optemax, on “University-Industry Collaborations”
1:45 – 2:45	<b>Dr. John Santini, Jr.</b> , CEO/Founder MicroChips Inc., on “Commercializing University-developed Technology”

10:15am – 2:45pm **Center Directors’ & Deputy Directors’ Closed Meeting**

	<i>Co-moderators:</i> <b>Fernando Muzzio</b> (Center Director, Rutgers C-SOPS) and <b>Perry Li</b> (U Minnesota CCEFP)
10:15 – 10:30	Welcoming Remarks and introductions
10:30 – 11:15	Discussion of a possible liaison group forming a “federation of ERCs” – led by <b>Fernando Muzzio</b>
11:15 – 12:00	<b>Erik Sander</b> (former ILO, U. Florida’s Particle ERC) on “Maintaining strong industrial participation in tough economic times”
12:00 – 1:30	Working Lunch – including time (12:30-1:30) with <b>Lynn Preston</b> and

	<b>Allen Soyster</b>
1:30 – 2:00	<b>Michael Silevitch</b> (Director, NEU Gordon-CenSSIS ERC) on how to achieve <u>real</u> diversity among the ERC’s leadership, staff, faculty, and students
2:00 – 2:45	<b>Perry Li</b> (Deputy Director, ERC for Compact and Efficient Fluid Power on “Inter-university coordination in a multi-university ERC: Issues and Solutions”

10:15am – 2:45pm **Administrative Directors’ Closed Meeting**

	<i>Moderator:</i> <b>Stephanie Betterman</b> (AD, U Minn CCEFP)
10:15 – 11:15	Communications Panel ( <i>panelists:</i> <b>Kevin Costa</b> (SynBERC), <b>Doris Lee</b> (BMES); and <b>Karen Richardson</b> (WIMS)
11:15 – 12:00	Renewals ( <b>Sheila Davis</b> , EUV ERC; and <b>Janice Brickley</b> , CASA)
12:00 – 1:00	Working Lunch: Time with <b>Lynn Preston</b> (12-12:30), <b>Barbara Kenny</b> , and <b>Shalika Walton</b>
1:00 – 2:00	<b>Barb Kenny</b> , ERC PD; <b>Charles Zeigler</b> , <b>Tim Kashmer</b> & <b>Andrea Kline</b> (NSF Contracts & Agreements); <b>Ganga Talasila</b> (QRC) on critical updates to the ERCWeb 2009 system – with Q&A
2:00 – 2:45	Graduation Planning ( <b>Beth Tranter</b> , Va Tech ; and <b>Elisa Ahmanson</b> , JHU CISST) and 2009 Summer Retreat plans

10:15am – 2:45pm **Industrial Liaison Officers’ Closed Meeting**

	<i>Moderator:</i> <b>Leonard Katz</b> (ILO, UC-Berkeley SynBERC)
10:15 – 10:30	Welcome, introduction, & agenda overview – <b>Leonard Katz</b>
10:30 – 12:00	Structuring Memberships to Accommodate Needs/Costs of Diverse Companies – Each ILO presents a 3-min summary of their ERC’s membership structure and company benefits – Summary of Structures of ERCs – Discussion: Pros and cons of tiered vs. flat membership
12:00 – 12:45	Working Lunch – <b>Erik Sander</b> (former ILO, U. Florida’s Particle ERC) on “Maintaining strong industrial participation in tough economic times”
12:45 – 1:45	How to Augment the Role of Center Directors and other PIs in Recruiting, Interacting, Collaborating with, and Retaining Companies – led by <b>Eric Erenrich</b> , Rutgers C-SOPS ILO)
1:45 – 2:15	Time with <b>Lynn Preston</b> , <b>Barb Kenny</b> , and <b>Deborah Jackson</b>
2:15 – 2:45	Intellectual Property (led by <b>Leonard Katz</b> ) – Licensing: multi (individual university) vs. single (consortium) licensing – Revenue streams for self-sufficiency/sustainability

10:15am – 2:45pm **Education/Outreach Directors’ Closed Meeting**

	<i>Moderator:</i> <b>William Durfee</b> (Education Co-director, U. Minnesota CCEFP)
10:15 – 11:00	"Speed presentation" overview of E/O programs. Each of 15 centers has 2 minutes to present an overview of their Center, their Center's E/O program and to highlight one program they are proud of, using their Center web site for visuals
11:00 – 12:00	Assessing E/O Programs. <i>Speaker:</i> <b>Giselle Ragusa</b> (Assoc. Director, E/O Assessment, USC BMES) ( <b>Lynn Preston</b> , <b>Mary Poats</b> , and <b>John</b>

	<b>Daniels, NSF, sitting in)</b>
12:00 – 1:15	Networking Lunch – <b>Mary Poats</b> and <b>John Daniels, NSF</b> , present as needed for further discussion
1:15 – 2:15	Connecting with Middle and High-school Pre-engineering Students <i>Speaker: Richard Grimsley</i> (Vice President of Programs, Project Lead The Way) on PLTW programs
2:15 – 2:45	International Collaborations in ERC Education Programs – <b>Ralph Etienne-Cummings</b> (Assoc. Director for Education, JHU CISST)

10:15am – 2:45pm **Research Thrust Leaders’ Closed Meeting**

	<i>Co-moderators: Sandra Cruz-Pol</i> (CASA)
10:15 – 12:00	Outline a Best Practices chapter on ERC Research Thrust Leadership & Management ( <b>Raj Dave</b> , Rutgers SOPS ERC to lead)
12:00 – 1:00	Working Lunch
1:00 – 2:15	Continued work on Best Practices for Thrust Management outline
2:15 – 2:45	Discussion with NSF ERC PDs <b>Fred Heineken, Steve Nelson &amp; Lynn Preston</b>

2:45pm – 3:15pm **Break**

3:15pm – 5:00pm **Plenary Session IV**

*Moderator: Lynn Preston*

3:15 – 4:00	<i>Speaker: Rathindra DasGupta</i> , NSF Industrial Innovation & Partnerships Division PD, “Opportunities for SBIR Grantees and ERCs to Collaborate” (includes Q&A)
4:00 – 4:40	<i>Speaker: John Daniels</i> , NSF PD, “Results of a Survey of the ERC Partner Universities” (includes Q&A)
4:40 – 5:00	Student Retreat Reporting-out – <b>Allan Evans</b> , member, WIMS SLC

**Dinner on your own**

**FRIDAY, December 5, 2008**

**Annual Meeting – Day Three  
Transdisciplinary Transformation**

7:00am – 8:00am Breakfast and Networking

8:00am – 9:45am **Plenary Session V: Focus on Transformative Impacts**

*Moderator: Lynn Preston*

8:00 – 8:05	Plan for Day – <b>Court Lewis</b>
8:05 – 8:10	<b>Lynn Preston</b> on the definition of transformative research in ERCs
8:10 – 8:35	<i>Speaker: Jimmy Zhu</i> (Director, Carnegie Mellon DSSC) on how the DSSC became self-sustaining through cutting-edge research and pioneering development of the memory storage industry
8:35 – 9:00	<i>Speaker: Phil Stewart</i> (Director, Montana State CBE) on how the CBE became self-sustaining through research that redefined its field and through taking advantage of both innovative strategies and serendipity
9:00 – 9:25	<i>Speaker: Amr Elnashai</i> (Director, UIUC MAE Center) on field-wide impacts of the MAE <i>Viz</i> visualization tool for earthquake loss assessment
9:25 – 9:45	<i>Speaker: Linda Griffith</i> (Director, MIT BPEC) — “From ‘Biotechnology

	& Bioengineering’ to Biological Engineering”—on the transformative impact of BPEC research and education programs on MIT and bioengineering generally and, through BPEC graduates, on the biotech industry
--	------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

9:45am – 10:15am      **Break**

10:15am –11:45am      **Breakout Session II: Cross-center Issues by Tech Cluster**

<p>Biotechnology &amp; Health Care Centers Discussion Section –  <i>Co-moderators: Takeo Kanade</i> (Director, CMU QoLT) &amp; <i>Sohi Rastegar</i>, NSF  <i>Topic:</i> (1) Inter-ERC collaboration within Bio cluster and with other ERCs; (2) Global interactions–competition and collaboration</p>	<p>All staff, faculty, students, industry</p>	<p><i>Speakers: Mark Humayun</i> (Director, BMES ERC) on “Inter-ERC Collaboration”; <b>Takeo Kanade</b> on “International Collaboration and Competition”; and <b>Robert Nerem</b> (Director, GTEC Tissue Engineering graduated ERC) on inter-ERC and international collaboration in a graduated ERC</p>
<p>Energy, Sustainability &amp; Infrastructure Centers Discussion Section–  <i>Co-moderators: Kim Stelson</i> (Director, UMin CCEFP) &amp; <b>Barb Kenny</b>, NSF PD  <i>Topic:</i> Making accurate energy conservation estimates for new technology</p>	<p>All staff, faculty, students, industry</p>	<p><i>Speaker: Maria Papadakis</i>, (Professor, Department of Integrated Science and Technology, James Madison University) on “Making Reliable Estimates of the Energy and Environmental Impact of New Technology” ”; <b>Paul Denholm</b> (National Renewable Energy Lab) on methods to calculate energy consumption and predict improvements due to new technologies</p>
<p>Microelectronics, Sensing &amp; Information Technology Centers Discussion Section–  <i>Co-moderators: Claire Gmachl</i> (Princeton MIRTHE) &amp; <b>Deborah Jackson</b>, NSF PD  <i>Topics:</i> (1) Future Networking Trends and (2) Technology Exchange</p>	<p>All staff, faculty, students, industry</p>	<p><i>Speaker: Jurij Paraszczak</i> (Director, Industry Solutions and Emerging Business Group, IBM Corp.) on emerging trends in networking; ERC Cluster Technology Exchange Forum: (1) EUV; (2) WIMS; (3) CASA; (4) CenSSIS; (5) MIRTHE</p>

11:45am – 12:00pm      **Break**

12:00pm – 12:15pm      **Plenary Session VI: Wrap-up**

12:00 – 12:15	Meeting Feedback & Action Items – <b>Lynn Preston</b> and <b>Court Lewis</b>
---------------	------------------------------------------------------------------------------

12:15pm      **Adjourn**

12:15pm      **Lunch** (self-serve box lunch, available “to go”)