UMC EXECUTIVE COMMITTEE
2016-17

Chair: Kristen Constant
Iowa State University

First Vice Chair: Naresh Thadhani
Georgia Institute of Technology

Second Vice-Chair: David Bahr
Purdue University

Treasurer: Frank Ernst
Case Western Reserve University

At Large Members:
Susan Sinnott
The Pennsylvania State University
David G. Cahill
University of Illinois at Urbana Champaign

Immediate Past Chair: Mark Asta
University of California, Berkeley

KC rotates to immediate Past Chair, we will need to fill Second Vice President Position and/or At Large Member if vacated.
Welcome to The University Materials Council Web Site

The University Materials Council (UMC) is composed of Department Heads, Chairpersons, Directors, and group leaders from academic programs in the materials field in U.S., Canadian, and Australian universities. It serves as a forum for department heads/chairs/directors of materials programs to share best practices in many areas related to materials science and engineering, including student recruitment, ABET accreditation, emerging research areas, ideas for curricular improvements, patent right policies in universities, implications of the latest materials related studies, and the health of research funding for Materials Science and Engineering as well as a variety of other issues of interest to the academic community.

UMC's Primary Goals

UMC conducts surveys to benchmark enrollments, faculty, and other key indicators of the materials field at the graduate and undergraduate levels. The results of these surveys are disseminated to the membership through the UMC web site and via UMC Newsletters. UMC also conducts workshops, seminars, and conferences to share best practices and promote networking among materials educators. UMC also works to promote funding opportunities for research and education in the materials field.
### Job Announcements

<table>
<thead>
<tr>
<th>Date Posted</th>
<th>Institution</th>
<th>Search Area</th>
<th>Faculty/Search Level</th>
<th>Closing/Review Date</th>
<th>Search Flyer</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/17/17</td>
<td>Georgia Tech</td>
<td>College of Engineering</td>
<td>Dean</td>
<td>April 30, 2017 to assure optimal consideration</td>
<td>PDF</td>
</tr>
<tr>
<td>3/16/17</td>
<td>University of Illinois at Chicago, Department of Civil and Materials Engineering</td>
<td>Materials Science and Engineering</td>
<td>Assistant/Associate/Full Professor</td>
<td>April 10, 2017</td>
<td>PDF</td>
</tr>
<tr>
<td>3/13/17</td>
<td>The University of British Columbia, Department of Materials Engineering</td>
<td>Instructor of teaching in Materials Engineering</td>
<td>Instructor/Senior Instructor or Professor of Teaching</td>
<td>April 30, 2017</td>
<td>PDF</td>
</tr>
<tr>
<td>3/13/17</td>
<td>The University of British Columbia, Department of Materials Engineering</td>
<td>Applied Electrochemistry</td>
<td>Assistant Professor</td>
<td>April 30, 2017</td>
<td>PDF</td>
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<tr>
<td>3/7/17</td>
<td>Penn State University, University Park</td>
<td>Inorganic nonmetallic materials</td>
<td>Professor/Associate Professor</td>
<td>open until filled; consideration of applications will begin on March 23, 2017</td>
<td>LINK</td>
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<tr>
<td>3/6/17</td>
<td>Rutgers University, Department of Materials Science and Engineering &amp; Physics and Astronomy Department</td>
<td>Materials Science and Engineering</td>
<td>Tenure Track Assistant Professor</td>
<td>Open until filled</td>
<td>PDF</td>
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<tr>
<td>2/19/17</td>
<td>Penn State University, University Park</td>
<td>College of Earth and Mineral Sciences</td>
<td>Professor, Dean</td>
<td>open until filled</td>
<td>PDF</td>
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<tr>
<td>2/15/17</td>
<td>McGill University</td>
<td>Sustainable Materials Processing</td>
<td>Assistant or Associate Professor (tenure track)</td>
<td>Open until filled</td>
<td>PDF</td>
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<tr>
<td>2/13/17</td>
<td>Monash University</td>
<td>Materials Science and Engineering (Education-focused position)</td>
<td>Senior Lecturer (or all levels)</td>
<td>Sunday 26 March 2017, 11:55pm Australian Eastern Daylight Time</td>
<td>PDF</td>
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<tr>
<td>Time</td>
<td>Event</td>
<td>Presenter/Notes</td>
<td></td>
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<tr>
<td>May 18</td>
<td><strong>AGENDA</strong></td>
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<td></td>
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<tr>
<td>8:30</td>
<td>Introductions &amp; Departmental Updates</td>
<td>ALL</td>
<td></td>
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</tr>
<tr>
<td>9:30</td>
<td>UMC Survey Results &amp; Discussion</td>
<td>David Bahr</td>
<td></td>
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<tr>
<td>10:15</td>
<td>ENGINE - tool sharing of potential graduate student names -</td>
<td>ALL</td>
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<tr>
<td>10:30</td>
<td>Intro and discussion on Frontiers Panel</td>
<td>KPC and others</td>
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<tr>
<td>11:00</td>
<td>ONR Outlook report</td>
<td>Julie Christodoulou</td>
<td></td>
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<tr>
<td>11:45</td>
<td>Lunch in Keck Cafeteria</td>
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<tr>
<td>1:15</td>
<td>NSF - Outlook</td>
<td>Linda Sapochak</td>
<td></td>
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<tr>
<td>2:00</td>
<td>ARO - Outlook</td>
<td>David Stepp</td>
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<tr>
<td>2:45</td>
<td>BREAK</td>
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<tr>
<td>3:00</td>
<td>DOE Outlook</td>
<td>Andy Schwartz</td>
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<tr>
<td>3:45</td>
<td>Breakout Group Discussion, Frontier Panel Introduction, etc.</td>
<td>All - in Groups</td>
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<tr>
<td>5:00</td>
<td>Adjourn</td>
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<td>6:30</td>
<td>Optional Dinner</td>
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<tr>
<td>May 19</td>
<td><strong>Location in Keck Center</strong></td>
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<tr>
<td>8:30</td>
<td>Frontiers Panel Input Development</td>
<td>(Subgroup Prelim report)</td>
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<tr>
<td>10:30</td>
<td>Break</td>
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<tr>
<td>10:45</td>
<td>Business Meeting Financial Report/Elections</td>
<td>KC</td>
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<tr>
<td>12:00</td>
<td>Adjourn</td>
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DEPARTMENTAL UPDATES
NAME, ROLE, AFFILIATION
ONE MINUTE TREND CHECK
TREND CHECK

• Just a minute to describe the TREND, OBSERVATION, CONCERN that affects MATERIALS RESEARCH at your institution.

• ONE MINUTE, PLEASE
UMC SURVEY
DISCUSSION

Data shared with Participating institutions. Past data to be shared with all.
POTENTIAL GRADUATE STUDENT – SHARING DATA

• History

• UMC Collects Names (with Students’ permission) of people interested in going to graduate school and shared it with those institutions contributing names

• Challenges
  • Consistency
  • Workload
  • Opportunities for programs without undergraduate degrees in Materials
ENGINE
HTTPS://ENGINE.ENG.UFL.EDU

• National consortium open to any U.S. institution offering bachelors of engineering degrees
  And
• interest in recruiting outstanding students for graduate school

• National consortium designed to enhance the volume, academic quality and diversity of more engineering graduate students and engineering leaders within the U.S.
INVITED INSTITUTIONS

Institutions participating are indicated in **BOLD**.

- Arizona State University
- Auburn University
- Bethune Cookman University
- Boise State University
- Boston University
- Bucknell University
- California Institute of Technology
- California Polytechnic State University - San Luis Obispo
- California State Polytechnic University - Pomona
- California State University, Los Angeles
- Carnegie Mellon University
- Case Western Reserve University
- City College of the City University of New York
- Clarkson University
- Texas A&M University, Kingsville
- Texas Southern University
- Texas State University
- Texas Tech University
- Tufts University
- Tuskegee University
- University at Albany, State University of New York
- University of Akron
- University of Alabama
- University of Alabama in Huntsville
- University of Alabama, Birmingham
- University of Arizona
- University of Arkansas
- University of Buffalo - State University of New York
2015 STUDENT PROFILE
The inaugural year of ENGINE highlights the following student profile:
- 56 institutions
- 11,621 engineering students
- 10,079 domestic students (U.S. Citizens, Permanent Residents)
- 5,354 graduating seniors; 6,228 juniors or beyond
- 3,327 female students; 2,913 domestic
- 1,474 underrepresented minority students
  - 3,819 with GPA 3.75 to 4.00
  - 2,990 with GPA 3.50 to 3.74
  - 2,431 with GPA 3.25 to 3.49
  - 2,050 with GPA 3.00 to 3.24
  - 323 with GPA < 3.00
DISCUSSION

Are there people here with direct experience?
Pros, cons?
Should we move in this direction?
The National Academies of Sciences, Engineering and Medicine will conduct: *Frontiers of Materials Research: A Decadal Survey* by the request of the [Department of Energy](https://energy.gov) and the [National Science Foundation](https://www.nsf.gov). The committee's final report will be targeted to an audience including the sponsors and other federal agencies that support materials research, science policymakers, and researchers in materials research and other fields.
STATEMENT OF TASK:

The Academies shall prepare a report that will articulate the status and promising future directions of materials research (MR) in the United States in the context of similar efforts world-wide. For this assessment, MR will be considered broadly in terms of material type, forms/structure, property, and phenomenon, as well as the full breadth of approaches to MR (e.g., experiment, theory, computation, modeling and simulation, instrument/technique development, synthesis, characterization, etc.).
IN PARTICULAR, THE REPORT WILL EXAMINE

• Assess the progress in MR over the past decade;
• Identify the principal changes in the research and development landscape for MR in the United States and internationally over the past decade, and how those changes have impacted MR;
• Identify MR areas that offer promising investment opportunities for the period 2020-2030 or have major scientific gaps;
• Identify fields in MR that may be good candidates for transition to support by other disciplines, applied R&D sponsors, or industry;

What we’re NOT going to do
• Identify the impacts that MR has had and is expected to have on national needs, and science, broadly;
• Identify challenges that MR may face over the next decade and offer guidance to the materials research community for addressing those challenges; and
• Evaluate recent trends in investments in MR in the United States relative to similar research that is taking place internationally by using a limited number of case studies of representative areas of MR that have either experienced significant recent growth or are anticipated to see significant near-term growth. Based on those trends, recommend steps the United States might take to either secure leadership or to enhance collaboration and coordination of such research support, where appropriate, for identified subfields of MR.
DISCUSSION GROUPS

• Assess Progress
• Changes in Research Landscape
• Promising Areas of Investment
• Current Trends in a Global Context (Where can the US LEAD)
• What we’re NOT going to do
• Anticipated Challenges and Solutions
• Impacts on Emerging Technologies
LUNCH – CAFETERIA IN HOUSE

Agenda resumes at 1:15 -
NSF OUTLOOK

Julie Christodouloou
DOE OUTLOOK

Andy Schwartz
BREAKOUT GROUP DISCUSSIONS
TASKS:

• Assess the progress and achievements in MR over the past decade;

• Identify the principal changes in the research and development landscape for MR in the United States and internationally over the past decade, and how those changes have impacted MR;

• Identify MR areas that offer promising investment opportunities in the period 2020-2030 or have major scientific gaps;

• Identify fields in MR that may be good candidates for transition to support by other disciplines, applied R&D sponsors, or industry;

What we’re NOT going to do

Promising Areas for Investment
• Identify the impacts that MR has had and is expected to have on national needs, and science, broadly;

• Identify challenges that MR may face over the next decade and offer guidance to the materials research community for addressing those challenges; and

• Evaluate recent trends in investments in MR in the United States relative to similar research that is taking place internationally by using a limited number of case studies of representative areas of MR that have either experienced significant recent growth or are anticipated to see significant near-term growth. Based on those trends, recommend steps the United States might take to either secure leadership or to enhance collaboration and coordination of such research support, where appropriate, for identified subfields of MR
DISCUSSION GROUPS

• Assess Progress
• Changes in Research Landscape
• Promising Areas of Investment
• What we’re NOT going to do
• Impacts on Emerging Technologies
• Anticipated Challenges and Solutions
• Current Trends in a Global Context (Where can the US LEAD)
For the first time in the post–World War II era, the federal government no longer funds a majority of the basic research carried out in the United States. Data from ongoing surveys by the NSF show that federal agencies provided only 44% of the $86 billion spent on basic research in 2015. The federal share, which topped 70% throughout the 1960s and ’70s, stood at 61% as recently as 2004 before falling below 50% in 2013.
BUSINESS MEETING

• Financial Report

• Election

• New Business
### 2016 UMC BALANCE SHEET

<table>
<thead>
<tr>
<th></th>
<th>Debits</th>
<th>Credits</th>
<th>Net Total</th>
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<tbody>
<tr>
<td><strong>Beginning Balance</strong></td>
<td>$26,368.38</td>
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<tr>
<td><strong>Spring Meeting 2016</strong></td>
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<td>$5,372.69</td>
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<td><strong>Fall Meeting 2016</strong></td>
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<td>$2,563.83</td>
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<tr>
<td><strong>Membership Fees (54)</strong></td>
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<td>$11,600.00</td>
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<tr>
<td><strong>Total</strong></td>
<td>$26,368.38</td>
<td>$(7,936.52)</td>
<td>$11,600.00</td>
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</tbody>
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IDEAS FOR INVESTMENTS/COMMENTS

• Previous ‘Special Workshops, events
  • Diversity Workshop
  • Others?

• DMMM3 – dates – piggy back

• Future topics
• Shared resources, shared data, etc. (Institutional models, etc.)
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At Large Members:
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University of Illinois at Urbana Champaign

S. Pamir Alpay (term ends 2019)
University of Connecticut

Immediate Past Chair:
Kristen Constant
Iowa State University
OTHER NEW BUSINESS

• Future meeting topics

• Future meeting locations

• Special Projects
THANK YOU!

THANK YOU to NAS for Allowing us to participate in the Frontiers Group Effort
HAVE A HAPPY, HEALTHY, PRODUCTIVE SUMMER