

# Cornell Engineering

## Agenda for Fall 2016 Engineering College Council Meeting

### THEME: THE MODERN ENGINEERING EDUCATIONAL EXPERIENCE

Pre-record College Update, in advance

#### THURSDAY, October 20, 2016

- 4:15 – 5:15 pm**      **Optional: Tour of eHub**  
*Led by Zach Shulman, Director, Entrepreneurship at Cornell*  
**Meet at:** Lobby of Statler Hotel
- 5:30 – 6:30 pm**      **Reception**  
**Location:** Yale/Princeton Rooms, Statler Hotel
- 6:30 – 8:30 pm**      **Dinner**  
**Location:** Rowe/Taylor Rooms, Statler Hotel  
*Lance Collins, Joseph Silbert Dean of Engineering, to introduce new members and discuss Engineering Energy Institute*

#### FRIDAY, October 21, 2016

##### Engineering College Council Meeting

**Location:** Cornell campus, 423 ILR Conference Center

- 8:00 – 8:15 am**      **Continental Breakfast**
- 8:15 – 8:45 am**      **Welcome**  
*ECC Chair Greg Galvin and Vice Chair Elissa Sterry*
- 8:45 – 10:00 am**      **Education in the Age of Exponential Technology**  
*Charles Fadel, Founder and Chairman of the Center for Curriculum Redesign, via Skype*
- 10:00 -11 am**      **Breakouts**  
*What did you hear that could be applied to Cornell Engineering?*
- 11 – 11:30 am**      **Report out and discussion**
- 11:30 – Noon**      **Division of Professional Practice**  
*Michael Thompson, Associate Dean for Undergraduate Programs and Associate Professor, Materials Science and Engineering*

- 12:15 – 1:15 pm**      **Lunch with project team leaders and Rebecca MacDonald, Swanson  
Director of Engineering Student Project Teams**  
**Location:** Taylor Room, Statler Hotel
- 1:15 pm**                      Return to 423 ILR Conference Center
- 1:30 – 2:15 pm**      **Massive Open Online Courses (MOOC) and Simulations: Creating a  
New Paradigm in Engineering Education by Combining Two  
Disruptive Technologies**  
*Rajesh Bhaskaran, Swanson Director of Engineering Simulation*
- 2:15 – 3:30 pm**      **Group discussion regarding Division of Professional Practice**  
Led by: *ECC Chair Greg Galvin and Vice Chair Elissa Sterry*
- Priorities
  - Areas that need enhancement
  - New areas to explore
- 4:00 – 5:00 pm**      **Optional: Robert Frederick Smith School of  
Chemical and Biomolecular Engineering Dedication**  
**Location:** Groos Family Atrium, Klarman Hall

### *Future ECC Meeting Dates*

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Day One:              Reception and Dinner, 5:30 p.m. – 8:30 p.m.  
Day Two:              ECC Meeting, 8:00 am – 4:00 p.m.

**Spring 2017**  
March 30-31, 2017

**Fall 2017 - NYC**  
October 26-27, 2017

**Spring 2018**  
April 12-13, 2018

**Fall 2018**  
October 25-26, 2018

**Spring 2019**  
March 28-29, 2019

**Fall 2019**  
October 24-25, 2019

## Fall 2016 Speaker Bios



### **Charles Fadel**

*Founder and Chairman of the Center for Curriculum Redesign*

Charles Fadel has worked with a wide variety of education ministries, and business and non-profit education organizations in Massachusetts, Canada (Federal, and Provinces), France, Finland, Sweden, Chile, Brazil, Costa Rica, Tunisia, and the Dominican Republic, to name a few, and has contributed to education projects in more than thirty countries. He has advised innovative school systems in Brazil ([Lumiar](#)) and Chile ([Innovacien](#)). He has contributed to, and has been featured by, media such as National Public Radio (NPR), the Canadian Broadcasting Corporation (CBC), the Huffington Post, eSchool News, Education Week, University Business, Technology & Learning, New Media Consortium, MA and NY Associations for Supervision and Curriculum Development, T.H.E. Journal, and many others. He has presented at numerous education conferences, including at UNESCO, the World Bank, the OECD, the Consortium for School Networking (COSN), the National School Boards Association (NSBA), the National Center for Technology Innovation (NCTI), and the Masie Center's Learning conferences. Partially overlapping his involvement in education matters, Charles had spent more than two decades in the ICT industry (semiconductors, and systems). He has been awarded five patents on video, content, and communication technologies. He holds a bachelor of science in electronics with course concentration in quantum and solid-state physics with electives in neuroscience, and a master of business administration in international marketing. An avid reader, he has autodidactically learned emerging disciplines such as evolutionary psychology. He also enjoys the lessons of classical history.



**Michael Thompson**

*Associate Dean for Undergraduate Programs and Associate Professor of Materials Science and Engineering*

Prof. Thompson received his B.S. in Applied Physics from CalTech in 1979 and M.S./Ph.D degrees in Applied and Engineering Physics from Cornell. For the past 28 years, his group's research has focused on the behavior of semiconductor materials under pulsed and CW laser exposure. He is coauthor on more than 120 papers and over 20 patents. Prof. Thompson's group is focused on the use of transient thermal processing on time frames from nanosecond to sub-seconds as a method for characterization and modification of material properties, focusing particularly on semiconductor materials and applications. These timeframes are achieved primarily through the use of pulsed and CW laser sources to heat materials to temperatures far beyond conventional limits, and cool within comparable timeframes by thermal quench to substrates. His group uses these methods to study fundamental material properties such as (i) the limits to liquid-phase epitaxial crystal growth through topologically complex nanopores, (ii) metastable activation and deactivation of dopant impurities in semiconductors, (iii) reaction and diffusion mechanisms in chemically amplified photoresist systems, and (iv) limits to stability of materials (organic) at high temperatures. These studies are tightly coupled with the corresponding industrial challenges including (i) front end junction formation for VLSI, (ii) EUV lithography, (iii) flexible electronics and (iv) novel photonic and solar cell materials. <http://www.mse.cornell.edu/mse/research/resgroups/thompson/index.html>



**Rebecca MacDonald**

*Swanson Director of Engineering Student Project Teams*

Rebecca MacDonald received her B.S. 2000 in Civil Engineering from Georgia Institute of Technology; Master's 2006 in Economics from Virginia Commonwealth University, and M.S.

2010 and Ph.D. 2013 in Civil Engineering from the University of Alabama. Rebecca Macdonald is the first Swanson Director of Engineering Student Project Teams at Cornell University and is thrilled to be in the position of leadership for an incredibly driven group of students with aspiring and impactful goals. The position was made possible by a generous endowment from John. A. Swanson '61, M.Eng. '63 and is responsible for leading the project teams program. The Engineering Student Project Team program provides opportunities for students across all engineering and related disciplines to participate in hands-on interdisciplinary design, development, and construction of novel methods and/or models. Students use technology, knowledge, creativity, entrepreneurship, and leadership skills to design and fabricate the projects, then engage in national and international competitions and service projects to show them to the world. Teamwork is fundamental to project success for all of the teams in the program.



**Rajesh Bhaskaran**

*Swanson Director of Engineering Simulation*

Dr. Bhaskaran received his B.Tech. 1989 (India) in Aerospace Engineering from the Indian Institute of Technology, and his M.S. 1992 and Ph.D. 1996 in Aerospace Engineering from Iowa State University. Dr. Bhaskaran's work seeks to promote the "democratization of simulation" through effective integration of simulation tools into engineering education. He directs the Swanson lab and has helped introduce industry-standard simulation tools into Cornell courses covering fluid mechanics, heat transfer, solid mechanics and numerical analysis. He has led the development of simcafe.org as an online portal for learning and teaching finite-element and CFD simulations. SimCafe is used worldwide in courses as well as for self-paced learning by students and industry professionals. He has developed a unified methodology for using simulation in disparate lecture-based and lab courses. This methodology helps students learn to approach simulations like an expert would rather than just pushing buttons and accepting results at face value. Dr. Bhaskaran's professional interests include: Engineering applications of simulation technology, reliable deployment of advanced simulation by generalist engineers and conceptual change in learners using simulations. He has organized two international workshops on simulation in engineering curricula.