Welcome back from your New Years break! For those of you experiencing winter for the first time, welcome to Pittsburgh! It’s not that bad.

As you may have noticed, we now have a number of new faces on the faculty. Raj Chakrabarti joined us last Fall as Associate Professor; Katie Whitehead in December as Assistant Professor; and Meagan Mauter in January as Assistant Professor with a joint appointment in ChE and EPP. Susana Steppan has been with us for a while but recently elevated to Assistant Teaching Professor. Finally, John Eslick has joined us and is working with the PSE faculty to teach the new MS-level course in Process Systems Modeling. Welcome to everyone!

The growth in the department and the integration of our new colleagues into the teaching program has allowed us to launch our four new MS courses, three this year and the fourth next Fall. So far these new courses seem to be going well. In the long run this change will enable us to offer a wider array of courses at all levels than in the past.

The other obvious change in the department over the past semester is the new MS office space in the A-100 wing. This took a little bit longer to complete than ideal, but was inaugurated with a cupcake party last Friday. This will ease up some of the space constraints that we have experienced last semester, and creates a home for our MS students.

Below you will read about some of the other developments of the past semester, including the activities of our faculty colleagues and our students.

Enjoy!

Andy
Department News

Ribbon Cutting Celebration at Master Student Space: A-level

Andy Gellman and Susana Steppan cut the ribbon to welcome all to the renovated space.

CAPD News

The CAPD is pleased to welcome the new member Rockwell Automation. The contact at Rockwell is Alexander B. Smith, who has a B.S. from CMU and Ph.D. from the University of Illinois. The Enterprise-wide Optimization (EWO) Meeting took place on September 26-27, 2012, with the participation of 15 industrial representatives. The EWO group is currently composed of the following companies: ABB, Air Liquide, Air Products, Braskem, Cognizant, Dow Chemical, Ecopetrol, ExxonMobil, Petrobras, Praxair, Sasol and Unilever. The CAPD short-course, Conceptual Design, Optimization Modeling and Integrated Process Operations is scheduled to take place on May 9-15, 2013. The short course will be organized in 7 modules that can be taken in any combination (e.g. 1, 2, 3 or all 7). Due to a scheduling conflict, Jeff Sirola’s module on conceptual design will be offered between the optimization and operations modules on Sunday, May 12.

The following visitors joined Larry’s group last fall: Dr. Kexin Wang from Zhejiang University, Hyojin Lee Ph.D. student from KAIST, Dr. Eranda Harinath from University of British Columbia, Dr. George Ostace from Romania and Dr. Carlos Porfirio from Petrobras.

The following visitors joined Ignacio’s group last fall: Dr. Juan Reyes Labarta from the University of Alicante, Pedro Copado Mendez Ph.D. student from the University of Roviri e Virgili and Brage Knudsen from NTNU, Trondheim. Dr. Jiang Yongheng from Tsinghua and Brenno Menezes, Ph.D. student from Petrobras, who will stay for one year.

Yang Chen has joined the group of Ignacio as a postdoc for an NETL project with David Miller. Yang recently completed his Ph.D. at MIT with Paul Barton. Tor Aksel Heirung joined Erik’s group last fall working on adaptive and dual control.
Outreach
Volunteers are needed for the Chemical Engineering Department activities at the National Engineers Week Celebration at the Carnegie Science Center on February 22-23, 2013. For more information, or to volunteer please contact Rose Frollini, Susana Steppan or Annette Jacobson.

Faculty News

Larry Biegler received an honorary doctorate in engineering sciences (Dr.-Ing. E.h.) from the Technical University of Berlin on January 25, 2013, “in appreciation of his outstanding scientific achievements on the research of process technology. Larry decisively helped the state of science and technology in the field of optimization of chemical processes and, in particular, their control and control his work. This is documented by an outstanding citation rate (h-index in Scopus by 30 for 249 after 1995 published work) and numerous prizes and honors.” More information on this can be found: http://www.pressestelle.tuberlin.de/menue/veranstaltungen/veranstaltungen_des_praesidenten/ehrendoktorwuerde_prof_biegler/"
Larry Biegler presented a short course entitled “Strategies for Nonlinear On-line Optimization,” in the Department of Systems Engineering and Automation, University of Valladolid, Valladolid, Spain, during the week of September 15-22. An invited talk entitled “Model Reduction for Multi-scale Optimization” was presented at the International Seminar on Production Planning and Scheduling at CENPES/Petrobras, Rio de Janeiro, during October 9-11. Finally, Larry participated in the 1st International Symposium on “InPROMPT 2012” sponsored by the Technical University of Berlin, where on November 16th he gave a presentation entitled “Optimization Tools for Process Modeling and Design.”

Andy Gellman was formally made Fellow of the AVS at the Fall 2012 meeting in Tampa. He was cited for his "discovery of naturally chiral metal surfaces and the demonstration of their enantiospecific interactions with chiral adsorbates." Fellows of the AVS comprise <0.5% of the societies membership.

Ignacio Grossmann. He attended the International Symposium on Mathematical Programming Meeting in Berlin, Germany, August 19-24, which he chaired a session on MINLP and presented the papers “Using Convex Nonlinear Relaxations in the Global Optimization of Nonconvex Generalized Disjunctive Programs,” Multiparametric Disaggregation as a New Paradigm for Global Optimization of Mixed-Integer Polynomial Programs,” and Solving Mixed-integer Linear-fractional Programming Problems via an Exact MILP Reformulation.” He also visited Lisbon, Portugal, in September where he gave the seminars “Optimal Synthesis and Planning of Sustainable Chemical Processes,” at the LNEG, and “Challenges in the Application of Mathematical Programming in the Enterprise-wide Optimization of Process Industries,” Department of Industrial Engineering, Instituto Tecnico Superior. In October he attended the Annual Meeting of the National Academy of Engineering where he presented his final report of his 3 year appointment as chair of the search committee of the chemical engineering section. In October he also gave the Distinguished Lecture in Chemical Engineering at the University of Western Ontario, “Optimal Synthesis and Planning of Sustainable Chemical Processes,” the web-conference “Optimal Planning and Scheduling for the Petroleum Industry” for Petrobras, and gave the talk “Current and Future Trends in Chemical Engineering,” at the Department of Chemical Engineering, Universidad los Andes, Bogota, Colombia. In November Ignacio received the Luis Federico Leloir for International Cooperation by the Ministry of Science, Technology and Innovation in Argentina. Finally, he attended the advisory board meetings at Cornell and Princeton.

John Kitchin gave the following invited talks:
**Nick Sahinidis.** In October, he attended the Industrial Advisory Board meeting of the Carbon Capture Simulation Initiative, where he presented a poster paper on “Superstructure Optimization for Carbon Capture Process” and demonstrated related GAMS/BARON software. Also in October, he attended the annual INFORMS meeting, where he chaired a session on “Surrogate and Derivative-free Optimization.” He and his students presented five papers at INFORMS, on various topics in the areas of global optimization, derivative-free optimization, and carbon capture. Nick also served as reviewer on an NSF panel for CAREER awards. In December, Nick visited IBM TJ Watson research lab, where he gave a talk on “Third generation branch-and-reduce codes algorithms for global optimization of nonconvex NLPs and MINLPs.” Also in December, Nick was selected as a member of the first Governing Council of the University of Macedonia, in Thessaloniki, Greece.

**Jeff Sirola.** Jeff continues to divide his time between CMU and Purdue although for the Fall Semester he has mostly been at CMU where in addition to helping Ignacio with the Senior Process Design project evaluating routes to aromatics from Pennsylvania Shale Gas, he has also developed and is delivering a new upper division and graduate elective course in Chemical Process Technology and Industry Structure. He recently presented two seminars at the Norwegian University of Science and Technology, “Thoughts on Sustainability, Energy, Carbon Management, and Shale Gas” and “Goal-Oriented Process Synthesis Augmented with Constraint-Oriented Process Synthesis,” a Process Synthesis Review short course at the Technical University of Denmark as well as a departmental seminar on Sustainability, Energy, Carbon Management, and Shale Gas, a presentation on Ethylene Production Technology to both the ACS Pittsburgh Local Section and the company Civil and Environmental Consultants, a departmental seminar at Columbia also on Sustainability, Energy, Carbon Management, and Shale Gas, and finally three presentations at the AIChE Annual Meeting, “ABET Update and Discussion,” “A Role for Chemical Engineering Societies in Facilitation of Carbon Management,” and “Critical Sustainability Challenges in the Short Term.” He also participated in advisory board meetings at Georgia Tech, South Carolina, and Delaware and continued his service as ABET Secretary.

**Bob Tilton** was elected a Fellow of the American Institute of Medical and Biological Engineering (AIMBE). The AIMBE is the authoritative voice and advocate for the value of medical and biological engineering to society. It is an organization of leaders in medical and biological engineering, consisting of academic, industrial, professional society councils and elected fellows. AIMBE was founded in 1991 and its current vision is to provide leadership and advocacy in medical and biological engineering for the benefit of society. Bob will be inducted at the February meeting of the Institute.

In other professional activities, Bob was elected to a second two-year term as Councilor for the American Chemical Society Division of Colloid and Surface Chemistry and delivered two leenary lectures, “Biological consequences of engineered nanoparticle interactions with environmental microbial communities” in the Bionanotechnology Plenary Session of the AIChE Annual Meeting in October, and “Nanoparticulate brushes – a new class of surface active material” at the Materials for Tomorrow Conference in Göteborg, Sweden, in October. He also delivered an invited talk “Self-dispersing drug carriers for pulmonary delivery: spreading of aqueous
Erik Ydstie is finishing up his undergraduate textbook on Process Automation and Control. He spent one month during the summer working on the project, and he will run through one last time in the spring of 2013 before it gets submitted to the publisher. Erik has started the organization of the 1st IFAC Workshop on Thermodynamics and Mathematical Systems Theory to take place in Lyon July 14-16, 2013. He is writing a book on adaptive control to be co-authored with Dr. Laurant Praly at Ecole National Superieure des Mines de Paris.

Welcome Visiting Scholars

Bin Liu is from Argonne National Laboratory, working with Prof. John Kitchin's group in the area of Computational Predictions Support.

Nancy Medina-Herrera is a visiting scholar from Instituto Tecnológico de Celaya, Mexico, working with Prof. Ignacio Grossmann's group on the development of mixed-integer programming models for complex distillation systems in collaboration with Prof. Arturo Jimenez.

George Ostace is a postdoctoral researcher from Babes-Bolyai University, Romania, working with Prof. Ignacio Grossmann and Prof. Larry Biegler's group on a project that deals with optimization modeling on an application that combines consumer product quality and logistics.

Monica Valdez-Arreole is a visiting scholar from Instituto Tecnológico de Celaya, Mexico, working with Prof. Ignacio Grossmann's group on the development of stochastic programming models applied to energy planning systems in collaboration with Prof. Vicente Rico-Ramirez.

Undergraduate News

Welcome to our new Spring 2013 Exchange Students!
Yonsei University, Korea
Soo Ah Jin
Jiwon Lee

Congratulations to the following students who were on the CIT Dean’s List for Fall 2012:

Seniors
Kelli Coffey
Erin Donnelly
Gregory Fillios
Rocio Garay
Benjamin Hauser

Tiffany Ho
Kelsey Holstein
Jyo Lyn Hor
Yong Ha Jung
Seung Hwan Jwa
Nicholas Karabin           Harrison Rose
Sujung Kim                Sara Saheb Kashaf
Stacey Lee                Joseph Selinger
Katherine Lee             Mala Shah
Hirotaka Nakagawa         Edward Smongeski
Neha Nandakumar           Allen Song
Priyanka Nawathe          Graham Spicer
Tufale Nawaz              Breanna Stillo
Nathaniel Ondeck          Marianne Thaila

Juniors
Katia Bazzi               Allison Lim
Jaqueline Budz            Kaitlyn Nowak
Adam Cantini             Anand Sastry
William Chai             Stephen Scannell
Julia Devito             James Solomon
Joseph Guihan             Ryan Trottier
Jinie Haytko             Shrihari Venkatesh
Kelley Huang             Rebecca Wells
Morgan Jaunzemis          Robert Winkelman
Mahaesh Jayaraman        Justin Young
Bennett Kriete

Sophomores
Won Chung                Sabiur Rahman
Eamon Cullinane          William Records
George Degen             Hak Soo Shin
Alexandra Frankel        Caitlin Streamer
Edison Gao               John Taormina
Jordan Green             Malavika Thottappillil
Sara Kelly               Samuel Winslow
Annette Ko               Darwin Yang
Mariah Ondeck           Ariana Zito-Wolf
Jimmy Petka             Christine Westcott
Palak Pujara

Congrats and good luck to the following Chemical Engineering B.S graduates for December 2012:
Alix Dixon-Ernst
Robert Wojno

Class Reps:
Seniors: Greg Fillios, Price Kinney, Abby Schaeffer
Juniors: Amy Yuan
Sophomores: Ridge Walker, Christine Westcott
Freshmen: Chris Seok, Gabriel Rodriguez, Jon Berman, Vasilios Sahinidis
Graduate Advisor: Bruno Abreu Calfa

Congratulations to our new AIChE Board
President: Stephanie Engel
Vice President: Breanna Stillo
Secretary: Zeinab Mohamed
Treasurer: Sharanya Venkat
University Liaison: Jessica Kafka

Industrial Liaison: Joseph Guihan
Social Chairs: Michelle Ruiz
Webmaster: Jim Church
Lecture Chair: Ian Dola
Team members who attended the National Conference: (left to right) Anusha Chinthaparthi, Alexandra Frankel, Madison Calhoun, Anand Sastry, Amy Yuan, Rebecca Lui, Katia Bazzi, Yijie Qiu, Ishan Nag, Joshua Kubiak.

The Carnegie Mellon ChemE Car team was again among the top 35 teams, the best contestants at the regional competitions around the United States, to compete at the National competition, which was held here in Pittsburgh in October. The goal set for the cars, announced only an hour before competition, was to travel a distance of 21 meters (~68.89 feet) while carrying a load of 300 grams. Competition was more intense than ever, with the winning team achieving a distance of 0.00 meters from the mark. Our team’s car, the Juggernaut, was a pressure-based car that ran on the pressure generated from degradation of hydrogen peroxide with potassium iodide as catalyst. Although the Juggernaut did not perform as well as we had hoped, team leaders were proud to see how well the team worked through a series of challenges—from having less than a month to prepare, to not getting the right hydrogen peroxide, to having to make adjustments on the size of the chassis...the list can go on. Needless to say, it was great to see the team grow, persevere, and get this far. The focus for the team now is to prepare for the upcoming April 2013
Regional Competition in New Jersey. The team is currently working on a thermal-based car, fuel-cell car, as well as a combustion car.

*World Jamboree Results - the CMU iGEM team by Yang Choo*

World Jamboree CMU iGEM team. From left to right Peter Wei (ECE & BME), Yang Choo (ChemE & BME), Eric Pederson (Biology).

We are delighted and proud to update all of you on our achievement in the iGEM World Jamboree held at MIT! We were selected as one of the top 16 teams (out of 190 teams) and won the "Best Foundational Advance" award, signifying that we were the best team in the world for the particular track. Seeing that flash upon the screen, I jumped up in disbelief, stunned that we, a small team of 4 and the inaugural iGEM team from CMU, had won the Foundational Advance Award, beating teams from around the world such as Cambridge, Yale and Peking.

It all started six months ago, when I excitedly found out that CMU was looking to create its first ever iGEM team. Fulfilling my goal of participating in Synthetic Biology, I eagerly joined the team. Being acutely aware of our limitations, our plans were modest and realistic. One thing we had though was tremendous support from our advisors and departments, allowing us to focus wholeheartedly on the competition itself and to work efficiently. Working through summer,
learning new skills and directing the flow of research was exceptionally fun and rewarding. We planned intelligently, worked passionately and at the end of it, winning the award was (like) icing on the cake.

Our project was to develop a fluorogen activated biosensor for the characterization of promoters. In simpler terms, one can think of a promoter as the engine of the cell. It regulates the cellular output (i.e. protein production). Imagine if you're a car designer and all the engines that are available to you are unlabeled black boxes, and the only way to find out their performance is to assemble the car with the engine and run it. That's the problem cell designers (synthetic biologists) face. Most of the promoters are not well characterized and our system alleviates this problem by providing a new tool for synthetic biologists to measure these characteristics more accurately. We primarily won because our system has the potential for becoming a new standard of characterizing promoters in synthetic biology.

See: http://www.cit.cmu.edu/media/press/2012/11_05_igem_win.html

**Graduate News**

Welcome to our new graduate students for Spring 2013:

**MS Students**

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<thead>
<tr>
<th>Name</th>
<th>School</th>
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<tbody>
<tr>
<td>Mingzhe Cong</td>
<td>Purdue University West Lafayette</td>
</tr>
<tr>
<td>Chen Lin</td>
<td>Wuhan Institute Of Chemical Technology</td>
</tr>
<tr>
<td>Jingru Lu</td>
<td>University Of Minnesota Twin Cities</td>
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<tr>
<td>Sejoon Park</td>
<td>University Of Minnesota Twin Cities</td>
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<tr>
<td>Jinjian Qian</td>
<td>Tsinghua University</td>
</tr>
<tr>
<td>Niyatee Ravipati</td>
<td>Manipal Institute Of Technology</td>
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<tr>
<td>Hui Wang</td>
<td>Nanjing University Of Technology</td>
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**MChE Students**

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<thead>
<tr>
<th>Name</th>
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<tbody>
<tr>
<td>William Chai</td>
<td>Carnegie Mellon University</td>
</tr>
<tr>
<td>Jyo Lyn Hor</td>
<td>Carnegie Mellon University</td>
</tr>
<tr>
<td>Hyunkyu Lee</td>
<td>Soongsil University</td>
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<tr>
<td>Yu Qiao</td>
<td>Xiamen University</td>
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**Congratulations to second year PhD students who passed their qualifier exams in December 2012:**

Melissa Dao, Eleni Karnezi, and Zhongnan Xu

**Congratulations to the following students who presented their thesis proposals in Fall 2012:**

Boyter, Patrick, “Functionalization of Single Wall Carbon Nanotubes for Delivery to Specific Immune Cells and Photothermal Applications.” Advisor: Prof. Dahl

Calfa, Bruno Abreu, “Modeling and Decomposition Strategies in Deterministic and Stochastic Production Planning and Scheduling Problems.” Advisor: Prof. Grossmann

Goldman, Johnathan, “Rapid Multiplexed Detection of Trace microRNA using Electrokinetic Focusing and Separation.” Advisor: Prof. Schneider

Marimuthu, Karthikeyan, “Optimization and Control of Polymerase Chain Reactions.” Advisor: Prof. Chakrabarti

Moyle, Todd, “Surfactant mediated tipstreaming as a tool for surfactant characterization and production of sub-micron drops.” Advisors: Profs. Anna and Walker

Poslusny, Denise, “The influence of rheology on electrophoretic mobility and electrokinetic particle interactions.” Advisors: Profs. Walker and Khair

Posner, Laura, “Sources of Particle Number in the Eastern United States.” Advisor: Prof. Pandis

Reinicker, Aaron, “Structure Sensitive Surface Chemistry: H2O, CO, and CH3OH on Cu(hkl) and Ni(hkl) surfaces.” Advisor: Prof. Gellman

Spagnol, Stephen, “Genes to Genome Organization: Exploring the Nuclear Structure-Function Relationship Through Genome Regulation and Stimulated Expression.” Advisor: Prof. Dahl

Congratulations to the following student who successfully defended in Fall 2012:

Advisors: Profs. Grossmann & Biegler

CHEGSA 2013 officers

President: Steve Spagnol  Vice President: Ben Yezer
Symposium Chairs: John Riley, Zixi Zhao, Zhongnan Xu
Social Chairs: Stephanie Kirby, Steve Klara, Steve Illes, Rob Stout, and Alex Dowling
Webmaster: Sreekanth Rajagopalan
GSA reps: Jake Boes, Satya Amaran, (Nick Chisolm-alternate)
Fundraising Chair: John Goldman
Future City 2013 Volunteers

Denise Poslusnzy: The Future City Competition is a national, project-based learning experience where 7th and 8th grade students apply math, science, and the engineering process to design a "city of the future" using SimCity simulations and tabletop scale models with recycled material. The ChemE grad students volunteered as judges for the Pittsburgh Regional competition.

Pictured: Jake Boes, Satya Amaran, Denise Poslusnzy, Jim Miller

Pictured: Laura Posner Denise Poslusnzy

Featured Faculty Article – Katie Whitehead

I grew up in Allentown as the oldest of three daughters. Christine, my youngest sister, was supposed to be a boy, but (as my mother says), you take what you can get. And although we were always happy with our family of girls, my father was understandably left with some unfulfilled father-son desires. Consequently, as a child, I was enrolled every spring into a local softball league. This never worked out very well for anyone. For one, I loathed playing softball- I hated the tight pants I had to wear, I hated getting benched, and I hated feeling like I was the worst player on the team. And then there was my poor father, who would sit frustrated in the stands, watching me strike out at the plate and haphazardly chase the balls whizzing past me in the outfield.

None of us, it seems, can be good at everything. My grandfather once told me that one of our responsibilities in life is to discover our gifts and talents, to develop them, and to use them for the benefit of others. To that end, as a teenager, I put aside the wretched sport of softball in favor of playing the piano, performing in musicals, and writing for the yearbook. But much of
the joy in my life has come in recognizing my academic and scientific abilities and in pursuing higher levels of education, all in an effort to get to where I am today.

I spent my undergraduate years swimming in a sea of homework at the University of Delaware. There, I first met the spunky not-yet-Prof. Kitchin, who was working on his Ph.D., and took a thermo course with Norm Wagner (who was Prof. Walker’s Ph.D. advisor – the apple doesn’t fall far from the tree). At the time, chemical engineers were just starting to foray into biological applications, and I was eager to apply my engineering skills to biomedical challenges.

In 2002, I started my Ph.D. work at UC Santa Barbara with Prof. Samir Mitragotri, and spent most of my time working on oral delivery systems. Specifically, we were interested in improving the quality of life of diabetics, who may need to take many insulin injections per day, by developing an oral insulin delivery device. Before I left UCSB, I had my first- but apparently not last- encounter with Prof. Khair, who was working on his postdoctoral research, and who seemed to spend a lot of time thinking. I also snagged my husband, Eric, who was working towards his Ph.D. in inorganic chemistry at UCSB.

Towards the end of my graduate career, I fell in love with the idea of RNA interference therapeutics, which treat disease by turning off, or silencing, problematic disease-associated proteins. As a postdoc in the Langer Lab at MIT, I had the opportunity to work in this exciting area while collaborating with several biotech companies in Boston. During the last five years, I’ve developed liposomal nanoparticles that can successfully deliver short interfering RNA (siRNA) to various biological targets in mice. I’ve been particularly enthused about the materials I’ve developed that have been patented and licensed for use in industry, since this is one of the most direct ways for research to impact patients.

In the Whitehead Lab, my students and I will continue to use our engineering and scientific skills for the benefit of others. We are working in the field of drug delivery to 1) improve our functional understanding of the biological barriers we’d like to traverse and 2) use our newfound understanding to design and develop smarter, more powerful delivery systems for the treatment and prevention of disease. In particular, we’re interested in making contributions to the areas of oral and immune cell delivery.

At the end of my day at CMU, I have a short walk home to a house rental on Beeler, which I share with Eric as well as our two hilarious Siberian cats, Max and Finley. So far, we’re loving the easy, friendly way of life in Pittsburgh and are looking forward to being a part of your CMU family in the years ahead. Do feel free to introduce yourself if you see me around campus, or stop by my office (DH A205) to say hello or to tell me a funny story. Stories involving Canada or honey badgers will receive bonus points.
Spring 2013 Chemical Engineering Seminar Series

February 7
Colloids, Polymers and Surfaces in Biotechnology: Protein Sorption and Transport in Ion-Exchange Media
Professor Abraham M. Lenhoff, Chair; Allan P. Colburn Professor of Chemical Engineering; Department of Chemical and Biomolecular Engineering, University of Delaware

February 14
(Title TBA)
Professor Chrysanthos Gounaris, Postdoctoral Associate, Princeton University

February 21
New Frontiers in Single Polymer Dynamics and Molecular Probe Engineering for Super-Resolution Imaging
Professor Charles Schroeder, Department of Chemical & Biomolecular Engineering, Department of Chemistry, Department of Materials Science and Engineering, University of Illinois at Urbana-Champaign

February 26
(Title TBA)
Professor William Ristenpart, Joe and Essie Smith Endowed Chair of Chemical Engineering Department of Chemical Engineering & Materials Science Department of Food Science & Technology Science, University of California - Davis

March 5 BAYER SEMINAR
Computer aided solvent selection, design and application
Professor Rafiqui Gani, CAPEC, Department of Chemical and Biochemical Engineering, Technical University of Denmark

March 26
Seeking Synergy Between Technological and Ecological Systems for Sustainable Engineering
Professor Bhavik Bakshi, William G. Lowrie Department of Chemical & Biomolecular Engineering, The Ohio State University

April 9
(Title TBA)
Professor Carl Laird, William and Ruth Neely Faculty Fellowship, Texas A&M

April 16
(Title TBA)
Professor Bill Bentley, Chair, Robert E. Fischell Distinguished Professor, University of Maryland