

Foundations of Systems Biology in Engineering (FOSBE 2009)

August 9-12, 2009 ♦ Inverness Hotel and Conference Center ♦ Englewood, Colorado

FINAL AGENDA – REVISED 8/9/2009

Sunday, August 9

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| 8:00 a.m. to | 6:00 p.m. | Conference Registration |
| 8:00 a.m. to | 9:00 a.m. | Continental Breakfast (complimentary for workshop attendees) |
| 9:00 a.m. to | 5:00 pm | Training Workshop (separate registration required)
<i>Session Chair: Frank Doyle, University of California Santa Barbara</i> |
| 9:00 a.m. to | 9:50 a.m. | Mathematical Modeling Methodology at Amgen
<i>David Balaban, Amgen</i> |
| 9:50 a.m. to | 10:40 a.m. | An Example of How Systems Biology is Contributing to Drug Discovery in the Pharmaceutical Setting
<i>Bruce Gomes, Pfizer</i> |
| 10:40 a.m. to | 11:10 a.m. | Refreshment Break |
| 11:10 a.m. to | 12:00 p.m. | Circadian Entrainment and Rhythm Generation
<i>Erik Herzog, Washington University and Hiroki Ueda, RIKEN</i> |
| 12:00 p.m. to | 1:00 p.m. | Lunch (on own) |
| 1:00 p.m. to | 1:50 p.m. | Bioenergetics and Biochemical Network Thermodynamics
<i>Vassily Hatzimanikatis, Swiss Institute of Technology (EPFL)</i> |
| 1:50 p.m. to | 2:40 p.m. | Parameter Estimation and Structure Identification in Metabolic Networks
<i>Eberhard Voit, Georgia Institute of Technology</i> |
| 2:40 p.m. to | 3:10 p.m. | Refreshment Break |
| 3:10 p.m. to | 4:00 p.m. | Network Robustness
<i>Frank Doyle, University of California Santa Barbara</i> |
| 4:00 p.m. to | 4:50 p.m. | Stochastic Chemical Kinetics
<i>Dan Gillespie, Gillespie Consulting</i> |
| 6:00 p.m. to | 7:45 p.m. | Welcome Reception |
| 7:45 p.m. to | 8:00 p.m. | Introductory Remarks
<i>Michael Henson, University of Massachusetts</i> |
| 8:00 p.m. to | 9:00 p.m. | Keynote Lecture – Timekeeping in a Three-Protein Circadian Clock
<i>Erin O'Shea, Harvard University</i> |
| 9:00 p.m. to | 10:00 p.m. | Hospitality Suite |

Monday, August 10

- 8:00 a.m. to 5:00 p.m. Conference Registration
- 8:00 a.m. to 9:00 a.m. Continental Breakfast (complimentary)**
- 9:00 a.m. to 11:45 p.m. General Session – Drug Development**
Session Chair: *Jeffrey Varner, Cornell University*
- 9:00 a.m. to 9:45 a.m. Practical Applications of Systems Biology to Biotherapeutics
Bruce Gomes, Pfizer
- 9:45 a.m. to 10:30 a.m. Controlling Tumor Growth Morphology
David Balaban, Amgen
- 10:30 a.m. to 11:00 a.m. Refreshment Break
- 11:00 a.m. to 11:45 a.m. Modeling and Analysis of the Proliferation and Differentiation Program of a Model Adult Human Stem Cell
Jeff Varner, Cornell University
- 11:45 a.m. to 12:30 p.m. Causal Modeling using Network Ensembles and *in silico* Simulations to Predict Novel Disease Mechanisms
Bruce Church, Gene Network Sciences
- 12:30 p.m. to 3:30 p.m. Free Afternoon**
- 3:30 p.m. to 6:15 p.m. General Session – Alternative Fuels**
Session Chair: *Maciek Antoniewicz, University of Delaware*
- 3:30 p.m. to 4:15 p.m. Engineering of Metabolic Networks
Jens Nielsen, Chalmers University of Technology
- 4:15 p.m. to 5:00 p.m. Metabolomics and Systems Biology
Masaru Tomita, Keio University
- 5:00 p.m. to 5:30 p.m. Refreshment Break
- 5:30 p.m. to 6:15 p.m. Towards Cost-effective Production of an Antimalarial Drug and Butanol
Huimin Zhao, University of Illinois
- 6:15 p.m. to 8:00 p.m. Dinner (on own)**
- 8:00 p.m. to 9:30 p.m. Poster Session I (with refreshments)**
Session Chairs: *Juergen Hahn, Texas A&M University*

Tuesday, August 11

- 8:00 a.m. to 9:00 a.m. Continental Breakfast (complimentary)**
- 9:00 a.m. to 12:30 p.m. General Session – Network Modeling and Analysis**
Session Chair: *Radhakrishnan Mahadevan, University of Toronto*
- 9:00 a.m. to 9:45 a.m. Functional Organization of Mammalian Cells
Ravi Iyengar, Mount Sinai Medical School
- 9:45 a.m. to 10:30 a.m. Analysis of Signaling Network Dysregulation in Hepatocytic Pathophysiology
Doug Lauffenburger, Massachusetts Institute of Technology
- 10:30 a.m. to 11:00 a.m. Refreshment Break
- 11:00 a.m. to 11:45 a.m. Engineering Analysis and Design of the Last Process in the Central Dogma
Vassily Hatzimanikatis, Swiss Institute of Technology (EPFL)
- 11:45 a.m. to 12:30 p.m. Abridging Chemical Reaction Networks: It's a Subtle Business
Dan Gillespie, Gillespie Consulting
- 12:30 p.m. to 1:45 p.m. Lunch (on own)**
- 1:45 p.m. to 3:30 p.m. **Roundtable Discussion on Federal Systems Biology Initiatives**
Session Chair: *Michael Henson, University of Massachusetts*
Dan Gallahan, National Cancer Institute
Bob Kokoska, Army Research Office
Joseph Palma, Army Medical Command
- 3:30 p.m. to 6:15 p.m. General Session – Systems Biology Education**
Session Chair: *Robert Parker, University of Pittsburgh*
- 3:30 p.m. to 4:15 p.m. Developing New Graduate Programs in Systems Biology – Challenges and Opportunities
Art Lander, University of California Irvine
- 4:15 p.m. to 4:45 p.m. Refreshment Break
- 4:45 p.m. to 5:30 p.m. System Biology Graduate Training in Engineering Schools
Eberhard Voit, Georgia Institute of Technology
- 5:30 p.m. to 6:15 p.m. Fostering Interdisciplinary Interactions in Training and Research
Bodo Stern, Harvard University
- 6:15 p.m. to 8:00 p.m. Dinner (on own)**
- 8:00 p.m. to 9:30 p.m. Poster Session II (with refreshments)**
Session Chairs: *Juergen Hahn, Texas A&M University*

Wednesday, August 12

8:00 a.m. to	5:00 p.m.	Conference Registration
8:00 a.m. to	9:00 a.m.	Continental Breakfast (complimentary)
9:00 a.m. to	12:30 p.m.	General Session – Circadian Systems Session Chair: <i>Rolf Findeisen, Otto-von-Guericke University</i>
9:00 a.m. to	9:45 a.m.	Systems Biology of Mammalian Circadian Clocks <i>Hiroki Ueda, RIKEN</i>
9:45 a.m. to	10:30 a.m.	Modeling the Circadian Clock: From Molecular Mechanism to Physiological Disorders <i>Albert Goldbeter, Free University of Brussels (ULB)</i>
10:30 a.m. to	11:00 a.m.	Refreshment Break
11:00 a.m. to	11:45 a.m.	Mechanisms that Synchronize Networked Circadian Oscillators in the Brain <i>Erik Herzog, Washington University</i>
11:45 a.m. to	12:30 p.m.	Synchrony and Robustness in Nature: From Circadian Timekeeping to Coral Spawning <i>Frank Doyle, University of California Santa Barbara</i>
12:30 p.m. to	3:30 p.m.	Free Afternoon
3:30 p.m. to	6:15 p.m.	General Session – Synthetic Biology Session Chair: <i>Kyongbum Lee, Tufts University</i>
3:30 p.m. to	4:15 p.m.	Noise, Memory and Communication in Natural and Engineered Bacteria <i>Adam Arkin, University of California Berkeley</i>
4:15 p.m. to	5:00 p.m.	Making Sense of Quorum Sensing: Basic Modalities and Rewired Utilities <i>Bill Bentley, University of Maryland</i>
5:00 p.m. to	5:30 p.m.	Refreshment Break
5:30 p.m. to	6:15 p.m.	Ensemble Modeling for Metabolic Networks <i>Jim Liao, University of California Los Angeles</i>
6:15 p.m. to	6:30 p.m.	Closing Remarks <i>Mike Henson, University of Massachusetts</i>
6:30 p.m. to	7:30 p.m.	Reception
7:30 p.m. to	8:00 p.m.	Founders Award Presentation Introduction: <i>Frank Doyle, University of California Santa Barbara</i> Systems Biology and Bioengineering <i>Doug Lauffenburger, Massachusetts Institute of Technology</i>
8:00 p.m. to	10:00 p.m.	Banquet