

Agenda

Day 1: Wednesday September 3rd

8:00 – 8:30am: Check-In, Set up Posters

8:30 – 8:45am: Welcome from IMAG and NIBIB

Grace Peng, IMAG Chair

Roderic Pettigrew, NIBIB Director

8:45 – 9:00am: [IMAG wiki and the interactive MSM](#) — *Stephanie Sabourin*

9:00 – 10:30am: THEME: [The BRAIN Initiative and its links to MSM](#)

9:00-9:05: Introduction—*Bill Lytton, Raj Vadigepalli*

9:05-9:35: **Keynote:** [Terry Sejnowski](#), *NIH BRAIN Working Group*

9:35-10:05: Government Perspective Panel

10:05-10:30: Discussion

10:30 – 11:00am: Refreshments* and Poster Viewing

11:00 – 12:00pm: THEME: [Model-based Physiomarkers](#)

11:00-11:04: Introduction—*Vasilis Marmarelis*

Motivation and potential clinical utility of model-based diagnostic physiomarkers.

11:04-11:18: Case Study 1: Deriving Novel Physiomarkers of Therapeutic Outcomes from Patient-Specific Models of the Failing Heart

Andrew McCulloch, Univ. of California San Diego

11:18-11:32: Case Study 2: Translational Systems Biology of Systemic Inflammation: Addressing the Translational Dilemma by generating clinically relevant phenotypes with multi-scale dynamic modeling

Gary An, University of Chicago

11:32-11:46: Case Study 3: A two-pronged data-mining approach to physiomarker discovery in tuberculosis.

Denise Kirschner, University of Michigan

11:46-12:00: Case Study 3: Model-based physiomarkers of vasomotor reactivity for diagnosis of early-stage Alzheimer's disease.

Vasilis Marmarelis, University of Southern California

12:00-12:15pm: [Integrated multiscale biomaterials experiment and modeling group \(\$\mu\$ BEAM\) WG](#)

Markus Buehler, Guy Genin



12:15 – 1:00pm: Lunch on your own (Lister Hill or Natcher, Bldg. 45)

1:00 – 2:30pm: Working Group Breakout sessions (Two 45-min sessions, change at 1:45pm)

Lister Hill Alcove—[Population Modeling](#)

Lister Hill Lobby— Integrated Multiscale Biomaterials Experiment and Modeling Group ([I \$\mu\$ BEAM](#))

Lister Hill Auditorium—[Clinical & Translational Issues](#) ([Credible Practice of Modeling & Simulation](#));
[Computational Neuroscience](#)

Bldg. 45 Balcony A—[Model & Data Sharing](#) ([Index of Predictive Models](#))

Bldg. 45 Balcony B—[Multiscale Systems Biology](#)

Bldg. 45 Balcony C—[Cell-to-Macroscale](#)

Bldg. 45 Rm D—[Theoretical & Computational Methods](#)

Bldg. 45 Rm H—[Biomechanics](#)

Bldg. 45 Rm J—[High Performance Computing](#)

2:30 – 3:00pm: Refreshments* and Poster Viewing (Return to Lister Hill Auditorium)

3:00 – 4:30pm: THEME: [Multicellular Tissue Models](#)

3:00-3:05: Introduction—*Herbert Sauro*

3:05-3:30: Different approaches to modeling multicellular systems, their pros and cons, including published examples and the CompuCell3D based system.
Maciej Swat, Indiana University

3:30-3:55: Critical multiscale modeling issues: from model uses to implementations and beyond.
Tony Hunt, University of California, San Francisco

3:55-4:10: Position talk on reproducibility in physiological and multicellular models
Jim Bassingthwaite, University of Washington

4:10-4:30: Discussion

4:30 – 4:50pm: [Index of Predictive Models](#) & [Model Sharing through Publications](#) (EMBS CBaP TC)
Herbert Sauro, Grace Peng

4:50 – 5:10pm: [Committee on Credible Practice of Modeling & Simulation in Healthcare](#)
Lealem Mulugeta, Ahmet Erdemir

5:10 – 5:30pm: [Defense Health](#) - Medical Modeling, Simulation, and Training: Developer Tools and Shared Resources
Kevin Kunkler, U.S. Army Medical Research & Materiel Command (USAMRMC)

6:30pm: Group Dinner at Vapiano in Bethesda

Agenda

Day 2: Thursday, September 4th

8:00 – 8:30am: Check-In

8:30 – 9:00am: **IMAG Multiscale Modeling and other Initiative Updates**—Grace Peng, IMAG reps

9:00 – 10:00am: THEME: **MSM in Drug Discovery and Development**—David D'Argenio

9:00-9:20: Predicting the Emergent Effects of Antiarrhythmic Drugs on Cardiac Rhythms
Colleen Clancy, University of California Davis

9:20-9:40: Anti-angiogenic Cancer Therapies Targeting the VEGF Pathway
Stacey Finley, University of Southern California

9:40-10:00: Phosphodiesterase control of AMPAR trafficking
Susana Neves, Mount Sinai School of Medicine

10:00 – 10:45am: **Refreshments* and Poster Viewing**

10:45 – 11:45am: THEME: **Public Health and Behavioral Modeling**

10:45-10:55: Introduction — *Alison Galvani, Madhav Marathe*

10:55-11:20: Data Analytics for Public Health Event Forecasting
Naren Ramakrishnan, Virginia Tech

11:20-11:45: Network Models for Infectious Disease Dynamics
Shweta Bansal, Georgetown University

11:45 – 12:30pm: Lunch on your own (Lister Hill or Natcher, Bldg. 45)

12:30 – 1:30pm: **Theme** Breakout sessions (Natcher Rooms D, H, J)

Bldg. 45 Rm D—[The BRAIN Initiative and its links to MSM Theme](#)

Bldg. 45 Rm H—[Model-Based Physiomarkers Theme](#)

Bldg. 45 Rm J—[MSM in Drug Discovery and Development Theme](#)

1:30 – 1:45pm: (Return to Lister Hill Auditorium)

1:45 – 2:15pm: Report back on **Theme** breakouts (Lister Hill Auditorium)

2:15 – 3:00pm: [The NIH as a Digital Enterprise](#)

Philip Bourne, NIH/OD



3:00 – 4:30pm: MSM Consortium Discussion

- MSM Consortium Goals and Structure—*Grace Peng*
- Plans for 2015 Consortium meeting—*All*
- Highlights from [Working Group](#) breakouts—*2014 WG leads*
 - Accomplishments from 2013 and 2014
 - Plans for 2015
 - Transitioning WG co-leads

4:30pm: Meeting Adjourn

**Refreshments courtesy of the IEEE Engineering in Medicine & Biology Society – Thank You!*

Day 3: Friday, September 5th (Satellite Session)

Improving Infrastructure for Virtual Tissues Modeling, Sharing Models Through Publications, Open-Source Modeling Platforms, Index of Reproducible Multi-Cell, Multi-Scale Models.

Organizers: Herbert Sauro (U Washington), Maciej Swat (Indiana U), Jim Sluka (Indiana U), James Glazier (Indiana U)

Purpose:

To explore the challenges of reproducibility and reuse of multiscale/multicellular models in biomedical research.

Agenda

9:00 – 9:10am: Meeting Introduction

Topic: Challenges in Multi-Scale/Multi-Cell Modelling - Standards, Ontologies, Model Sharing, Reuse, Reproducibility, Repositories, Journals etc...

9:10-9:25: James Glazier

9:25-9:40: Tony Hunt

9:40-10:20: Discussion

10:20 – 10:30am: Coffee Break on your own

10:30-10:45: Melissa Knothe Tate

10:45-11:00: Ronan Fleming

11:00-12:00: Discussion

12:00 – 1:00pm: Lunch on your own

Topic: Credible Practices in Biomedical Modeling

1:00-1:15: Gary An

1:15-1:30: Lealem Mulugeta

1:30-2:15: Discussion

2:15-2:45: Phil Bourne

2:45-3:00: Discussion