

Brown University CCMB Symposium, May 3-7, 2010
Co-organized with the Office of the President
Co-organized with the Department of Computer Science
*Supported in part by the Office of the President, The C.V. Starr Lectureship,
& the National Science Foundation*

<http://www.brown.edu/Research/CCMB/Conferences/SYMPOSIUMMAY2010/info.htm>

All events held in Brown University's Thomas J. Watson Sr. Center for Information Technology
115 Waterman Street, 3rd Floor, Providence, RI 02912-1910
Directions available from <http://www.cs.brown.edu/about/directions/>

Tentative Schedule

John von Neumann Distinguished Lecture Series

organized by:

Leon Cooper, Thomas J. Watson Sr. Professor of Science and Director, Institute for Brain and Neural Systems
(Department of Physics)

Stuart Geman, James Manning Professor of Applied Mathematics (Division of Applied Mathematics)

Sorin Istrail, Julie Nguyen Brown Professor of Computational and Mathematical Sciences and Professor of
Computer Science and Director, Center for Computational Molecular Biology (Department of Computer
Science)

Roberto Serrano, Harrison S. Kravis University Professor of Economics, Brown University (Department of
Economics)

Monday, May 3rd:

8:30-9:00am: Continental Breakfast

9:00-9:15am: Introductory remarks by **Sorin Istrail**, Julie Nguyen Brown Professor of Computational and
Mathematical Sciences and Professor of Computer Science, Brown University
and
Clyde Briant, Vice President for Research, Brown University

9:15-10:30am: **Marina von Neumann Whitman**, Professor of Business Administration and Public Policy,
University of Michigan

9:15-10:00am: "John von Neumann: a Daughter's View"

10:00-10:30am: Sweatbox Q&A Session

10:30-10:45am: Break

- 10:45am-12:15pm:** *John Conway*, John von Neumann Professor of Mathematics, Princeton University
 10:45-11:45am: *von Neumann Distinguished Lecture on Mathematics: "von Neumann, Set Theory and Life"*
 11:45am-12:15pm: Sweatbox Q&A Session
- 12:15-2:15pm:** Lunch
- 2:15-3:45pm:** *Richard Karp*, University Professor, University of California, Berkeley
 2:15-3:15pm: *von Neumann Distinguished Lecture on Computer Science: "Understanding Science Through the Lens of Computation"*
 3:15-3:45pm: Sweatbox Q&A Session
- 3:45-4:00pm:** Break
- 4:00-5:00pm:** *George Dyson*, Historian of Science,
 "On the Physical Realization of an Electronic Computing Instrument, 1945-1956"
- 5:00pm:** Reception hosted by Provost David Kertzer

Tuesday, May 4th:

- 9:30-10:00am:** Continental Breakfast
- 10:00-11:30am:** *Freeman Dyson*, Professor Emeritus of Physics, Institute for Advanced Study, Princeton, NJ
 10:00-11:00am: *von Neumann Distinguished Lecture on Physics: "A Walk Through Johnny von Neumann's Garden"*
 11:00-11:30am: Sweatbox Q&A Session
- 11:30-1:30pm:** Lunch
- 1:30-3:00pm:** *Leon Cooper*, Nobel Laureate, Thomas J. Watson Professor of Science and Director, Institute for Brain and Neural Systems, Brown University
 1:30-2:30pm: *von Neumann Distinguished Lecture on Physics: "von Neumann and the Problem of Measurement in the Quantum Theory"*
 2:30-3:00pm: Sweatbox Q&A Session
- 3:00-3:15pm:** Break
- 3:15-4:45pm:** *Andrew G. Clark*, Jacob Gould Schurmn Professor of Population Genetics, Department of Molecular Biology and Genetics, Cornell University
 3:15-4:15pm: "Consequences of Explosive Human Population Growth on Complex Genetic Disorders"
 4:15-4:45pm: Sweatbox Q&A Session

Symposium: The Genome and the Computational Sciences: The Next Paradigms

Chair: Sorin Istrail, Julie Nguyen Brown Professor of Computational and Mathematical Sciences and Professor of Computer Science and Director, Center for Computational Molecular Biology (Department of Computer Science)

Wednesday, May 5th:

8:30-9:00am: Continental Breakfast

9:00-10:30am: ***Eric H. Davidson***, Norman Chandler Professor of Cell Biology, California Institute of Technology
9:00-10:00am: ***von Neumann Distinguished Lecture on Biology:*** “Genomic Control System for Development: The Sea Urchin Embryo Gene Regulatory Network”
10:00-10:30am: Sweatbox Q&A Session

10:30-10:45am: Break

10:45am-12:15pm: ***Ellen V. Rothenberg***, Albert Billings Ruddock Professor of Biology, California Institute of Technology
10:45-11:45am: “A Gene Regulatory System Guiding Cell Identity Choice: Stem Cells to T Cells”
11:45am-12:15pm: Sweatbox Q&A Session

12:15-2:15pm: Lunch

2:15-3:45pm: ***Jonathan W. Yewdell***, Chief, Biology Section, Laboratory of Viral Diseases, National Institute of Allergy and Infectious Diseases, NIH
2:15-3:15pm: “It’s Not Written in Stone: Stress Induced Alteration in the Genetic Code”
3:15-3:45pm: Sweatbox Q&A Session

3:45-4:00pm: Break

4:00pm: Brief Reception celebrating the Center for Computational Molecular Biology’s new Doctoral Program in the SWIG Boardroom (CIT 241)

Thursday, May 6th:

8:30-9:00am: Continental Breakfast

9:00-10:30am: ***Richard Lewontin***, Alexander Agassiz Research Professor, Museum of Comparative Zoology, Harvard University
9:00-10:00am: “The Problem of Natural Selection for Genomic Variation”
10:00-10:30am: Sweatbox Q&A Session

10:30-10:45am: Break

10:45am-12:15pm: **Martha Bulyk**, Associate Professor of Medicine and Pathology (and Health Sciences and Technology), Harvard Medical School

10:45-11:45am: "Transcription factor-DNA interactions: cis regulatory codes in genomes"

11:45am-12:15pm: Sweatbox Q&A Session

12:15-2:15pm: Lunch

2:15-3:45pm: **David Shaw**, Chief Scientist, D.E. Shaw Research, and Senior Research Fellow, Center for Computational Biology and Bioinformatics, Columbia University

2:15-3:15pm: "Millisecond-Long Molecular Dynamics Simulations of Proteins on a Special-Purpose Machine"

3:15-3:45pm: Sweatbox Q&A Session

3:45-4:00pm: Break

4:00-5:30pm: **Martin Meier-Schellersheim**, Team Leader, Computational Biology Group, National Institute of Allergy and Infectious Diseases, NIH

4:00-5:00pm: "The Challenges of Spatially Resolved Computational Modeling of Cellular Signaling Processes"

5:00-5:30pm: Sweatbox Q&A Session

Friday, May 7th:

8:30-9:00am: Continental Breakfast

9:00-10:30am: **Sam Broder**, Chief Medical Officer, Celera, and former Director of the National Cancer Institute, NIH

9:00-10:00am: "The Development of Antiretroviral Therapy and Its Impact on the Global HIV-1/AIDS Pandemic: Personal Reflections on a Journey to Treat an "Untreatable" Virus After 25 Years"

10:00-10:30am: Sweatbox Q&A Session

10:30-10:45am: Break

10:45am-12:15pm: **Kenneth Arrow**, Nobel Laureate, Joan Kenney Professor of Economics and Professor of Operations Research Emeritus, Stanford University

10:45-11:45am: **von Neumann Distinguished Lecture on Economics:** "My Beliefs and Ours: Formation, Costs, Interactions, and Effects"

11:45am-12:15pm: Sweatbox Q&A Session

12:15-2:15pm: Lunch

2:15-3:45pm: **Sean Eddy**, Group Leader, Janelia Farm, Howard Hughes Medical Institute

2:15-3:15pm: "Reading Genomes"

3:15-3:45pm: Sweatbox Q&A Session

3:45-4:00pm: Break

4:00-5:30pm: **Panel Session: *Brain Signaling: Digital, Analog or Both?***
Panel Chair: Leon Cooper, Thomas J. Watson Sr. Professor of Science and Director, Institute for Brain and Neural Systems, Brown University

Panelists:

Kenneth Arrow, Nobel Laureate, Joan Kenney Professor of Economics and
Professor of Operations Research Emeritus, Stanford University

Elie Bienenstock, Associate Professor of Applied Mathematics, Brown University

Sean Eddy, Group Leader, Janelia Farm, Howard Hughes Medical Institute

Stuart Geman, James Manning Professor of Applied Mathematics, Brown University

Sorin Istrail, Julie Nguyen Brown Professor of Computational and
Mathematical Sciences and Professor of Computer Science, Brown University