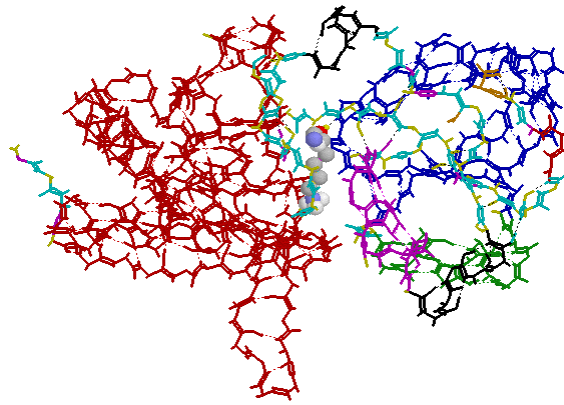


PROGRAM

Workshop on:
***Computational
and
Theoretical Biology***



Michigan State University

Saturday, April 24, 1999

**8:30 a.m. – 3:10 p.m.
Room 224 Physics & Astronomy Building**

PROGRAM

Workshop on Computational and Theoretical Biology
April 24, 1999 — Michigan State University

Saturday, April 24, 1999

8:30 – 9:00 **Introductions by George Leroi, P.K. Wong and Tony Wojcik**

<i>Chair: Bill Punch</i>

Session A in room 224 Physics and Astronomy Bldg.

9:00 – 9:10 **Robert J. Tempelman**
A1 *Generalized Linear Mixed Models for Genetic Evaluation of Livestock*

9:10 – 9:20 **Chichia Chiu**
A2 *Numerical Methods for Pattern Formation Problems in Biology*

9:20 – 9:30 **Sydney D'Silva**
A3 *How Honey Bees Make Decisions*

9:30 – 9:40 **Frank B. Dazzo**
A4 *CMEIAS: A Tool for Computational Microbial Ecology*

9:40 – 9:50 **Stuart H. Gage**
A5 *Computational Ecology and Visualization Technologies*

9:50 – 10:00 **George Garrity**
A6 *Markup of Microbiological Data for Accelerated Publication
in Print and Electronic Form*

10:00 – 10:10 **Tom Getty**
A7 *Models of Signaling, Search, Discrimination and Selection*

10:10 – 10:20 **Richard E. Lenski**
A8 *Genomic Complexity in Micro Organisms and Digital Organisms*

10:20 – 10:50 **Coffee Break**

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<i>Chair: Mike Thorpe</i>

Session B in room 209 Physics and Astronomy Bldg.

- 9:00 – 9:10** **Simon J.L. Billinge**
B1 *Local Structure of Folded Proteins*
- 9:10 – 9:20** **James R. Cole**
B2 *The Ribosomal Database Project: Providing an
Evolutionary Framework*
- 9:20 – 9:30** **Tien Yien Li**
B3 *Solving Polynomial Systems*
- 9:30 – 9:40** **Shelagh S. Ferguson-Miller**
B4 *How Proteins Get Together and Electrons Get Transferred:
Mutational, Spectroscopic, Kinetic and Computational Analysis
of Cytochrome c Docking with Cytochrome c Oxidase*
- 9:40 – 9:50** **Jay I. Goodman**
B5 *Altered DNA Methylation: An Epigenetic Mechanism Involved
in Carcinogenesis*
- 9:50 – 10:00** **Erik Goodman**
B6 *Evolutionary Algorithms for Biological Science*
- 10:00 – 10:10** **Katharine Hunt**
B7 *Optical Trapping of Biomolecules*
- 10:10 – 10:20** **Michael Kron**
B8 *Structure Based Design of Aminoacyl-tRNA Synthetase Inhibitors
as Anti-Parasitic Drugs*
- 10:20 – 10:50** **Coffee Break**

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April 24, 1999 — Michigan State University

<i>Chair: P.K. Wong</i>

Session C in room 224 Physics and Astronomy Bldg.

- | | |
|-----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| 10:50 – 11:00
<i>C1</i> | Wolfgang Bauer
<i>Cancer Detection via Determination of Fractal Cell Dimension</i> |
| 11:00 – 11:10
<i>C2</i> | Andre Benard
<i>Image-Based Analysis of Heat Transfer in Biological Systems</i> |
| 11:10 – 11:20
<i>C3</i> | Raoul LePage
<i>Outline of Research Statistics Component</i> |
| 11:20 – 11:30
<i>C4</i> | Jack Deller
<i>BioSignal Processing Activities in MSU's Department of
Electrical and Computer Engineering</i> |
| 11:30 – 11:40
<i>C5</i> | Nicolae Duta
<i>Learning Biological Shape Models</i> |
| 11:40 – 11:50
<i>C6</i> | Michael J. Harrison
<i>The Role of Thermally Excited Eardrum Pressure: Fluctuations
in Establishing Primate Auditory Thresholds</i> |
| 11:50 – 12:00
<i>C7</i> | Robert Hubbard
<i>Biomechanical Models for Seating Design</i> |
| 12:00 – 12:10
<i>C8</i> | Fathi Salam
<i>Bio-Engineering: An Integrated Systems Approach</i> |
| 12:10 – 1:10 | Lunch |

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<i>Chair: Tony Wocjik</i>

Session D in room 209 Physics and Astronomy Bldg.

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|-----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| 10:50 – 11:00
<i>D1</i> | Leslie Kuhn
<i>How Proteins Fold, Flex and Bind Other Molecules</i> |
| 11:00 – 11:10
<i>D2</i> | S.D. Mahanti
<i>Simulation on Coarse-Grained Models of Amphiphiles</i> |
| 11:10 – 11:20
<i>D3</i> | Sakti Pramanik
<i>Computational Challenges for Discovering Homologies
between Genome Sequences</i> |
| 11:20 – 11:30
<i>D4</i> | William Punch
<i>Self-Assembly, Folding and Unfolding of Polymers</i> |
| 11:30 – 11:40
<i>D5</i> | M.F. Thorpe
<i>Protein Flexibility</i> |
| 11:40 – 11:50
<i>D6</i> | Eric Torng
<i>Incremental Update of Phylogenetic Trees Using
Hierarchical Modeling</i> |
| 11:50 – 12:00
<i>D7</i> | Joseph White
<i>Bioinformatics for the Seed EST Functional Genomics Project</i> |
| 12:00 – 12:10
<i>D8</i> | Jack Preiss
<i>Previous Funding Support for Computational Biology from the REF
Center of Protein Structure, Function and Design</i> |
| 12:10 – 1:10 | Lunch |

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<i>Chair: Leslie Kuhn</i>

Session E in room 224 Physics and Astronomy Bldg.

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|---------------------------------|---------------------------------------------------------------------------------------------------------------|
| 1:10 – 1:20
<i>E1</i> | James E. Trosko
<i>Gene Regulation in Pluripotent Human Stem Cells</i> |
| 1:20 – 1:30
<i>E2</i> | C.Y. Wang
<i>Simulation of Biological Growth</i> |
| 1:30 – 1:40
<i>E3</i> | Tim Zacharewski
<i>Toxicogenomics</i> |
| 1:40 – 1:50
<i>E4</i> | Milan Miklavcic
<i>Stability for Discrete Velocity Models of the Extended Boltzmann Equation</i> |
| 1:50 – 2:00
<i>E5</i> | Mark Dykman
<i>Selective Control of Diffusion of Biological Systems</i> |
| 2:00 – 2:10
<i>E6</i> | William M. Hartmann
<i>Perceptually Relevant Models of Neural Excitation in the Auditory System</i> |

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<i>Chair: Sakti Pramanik</i>

Session F in room 209 Physics and Astronomy Bldg.

- 1:10 – 1:20** **Jianguo Liu**
F1 *Systems Modeling Laboratory: An Integrated Approach to
Landscape and Biodiversity Study*
- 1:20 – 1:30** **David W. Hyndman**
F2 *Integrating Social Drivers and Environmental Impacts Using a
Geographic Information System: The Land Transformation
Modeling Project*
- 1:30 – 1:40** **Peter M. Saama**
F3 *Mixed Model Inference in the Analysis of cDNA Array Data*
- 1:40 – 1:50** **Tim Lilburn**
F4 *The Calculation of Large Phylogenetic Trees*
- 1:50 – 2:00** **Kim Scribner**
F5 *Novel Applications of Molecular Genetic Markers and Population
Genetic Theory in Population Ecology and Resource Management*
- 2:00 – 2:10** **Mark Worden**
F6 *Role of Microbial Chemotaxis in Bioremediation of Microbial Ecology*
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2:10 – 2:40 **Group discussions**

2:40 – 3:10 **Final wrap-up, list of recommendations, further activities etc.**