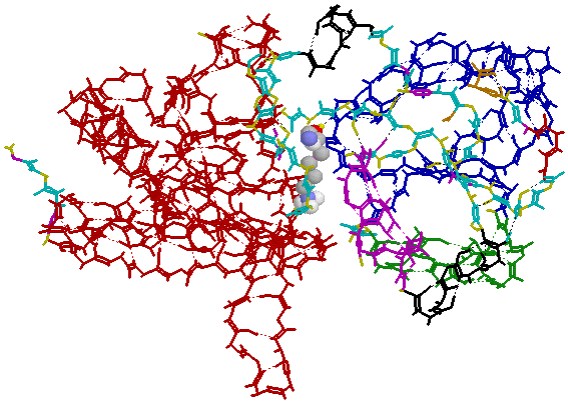
PROGRAM

Workshop on:

Computational and Theoretical Biology



Michigan State University

Saturday, April 24, 1999

8:30 a.m. – 3:10 p.m.
Room 110 Radiology Building
(Near Clinical Center on the MSU Campus)

Workshop on Computational and Theoretical Biology

Workshop Organizer: P. K. Wong

Program Committee: Leslie Kuhn
Sakti Pramanik
Bill Punch
Mike Thorpe

Thanks are given to the College of Natural Science, the Engineering College, and the Office of the Vice President for Research and Graduate Studies for supporting this meeting.

The Computational Biology group maintains a web site at
http://compbio.cse.msu.edu/

Please contact Bill Punch at *punch@cse.msu.edu* if you would like to add a link to your homepages.

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Saturday, April 24, 1999

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

Chair: Sakti Pramanik

Session A in room 110 Radiology Building

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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Chair: Mike Thorpe

Session B in room 139 Radiology Building

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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Chair: A. Jain

Session C in room 110 Radiology Building

10:50 – 11:00 **Wolfgang Bauer**
C1 *Cancer Detection via Determination of Fractal Cell Dimension*

11:00 – 11:10 **Andre Benard**
C2 *Image-Based Analysis of Heat Transfer in Biological Systems*

11:10 – 11:20 **Raoul LePage**
C3 *Outline of Research Statistics Component*

11:20 – 11:30 **Jack Deller**
C4 *BioSignal Processing Activities in MSU's Department of Electrical and Computer Engineering*

11:30 – 11:40 **Nicolae Duta**
C5 *Learning Biological Shape Models*

11:40 – 11:50 **Michael J. Harrison**
C6 *The Role of Thermally Excited Eardrum Pressure: Fluctuations in Establishing Primate Auditory Thresholds*

11:50 – 12:00 **Robert Hubbard**
C7 *Biomechanical Models for Seating Design*

12:00 – 12:10 **Fathi Salam**
C8 *Bio-Engineering: An Integrated Systems Approach*

12:10 – 1:10 **Lunch**

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Chair: Bill Punch

Session D in room 139 Radiology Building

10:50 – 11:00 **Leslie Kuhn**
D1 *How Proteins Fold, Flex and Bind Other Molecules*

11:00 – 11:10 **M.F. Thorpe**
D2 *Protein Flexibility*

11:10 – 11:20 **Sakti Pramanik**
D3 *Computational Challenges for Discovering Homologies between Genome Sequences*

11:20 – 11:30 **Mark Dykman**
D4 *Selective Control of Diffusion of Biological Systems*

11:30 – 11:40 **S.D. Mahanti**
D5 *Simulation on Coarse-Grained Models of Amphiphiles*

11:40 – 11:50 **Eric Torng**
D6 *Incremental Update of Phylogenetic Trees Using Hierarchical Modeling*

11:50 – 12:00 **Joseph White**
D7 *Bioinformatics for the Seed EST Functional Genomics Project*

12:00 – 12:10 **Jack Preiss**
D8 *Previous Funding Support for Computational Biology from the REF Center of Protein Structure, Function and Design*

12:10 – 1:10 **Lunch**

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Session E in room 110 Radiology Building

1:10 – 1:20 **James E. Trosko**
E1 *Gene Regulation in Pluripotent Human Stem Cells*

1:20 – 1:30 **C.Y. Wang**
E2 *Simulation of Biological Growth*

1:30 – 1:40 **Tim Zacharewski**
E3 *Toxicogenomics*

1:40 – 1:50 **Milan Miklavcic**
E4 *Stability for Discrete Velocity Models of the Extended Boltzmann Equation*

1:50 – 2:00 **William Punch**
E5 *Systems Self-Assembly, Folding and Unfolding of Polymers*

2:00 – 2:10 **William M. Hartmann**
E6 *Perceptually Relevant Models of Neural Excitation in the Auditory System*

2:10 – 2:20 **J. Potchen**
E7 *CT and MR Fly Through Images in Humans and ROC of Observer Performance*

2:20 – 3:10 **Group discussions**

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Session F in room 139 Radiology Building

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*

2:20 – 3:10 **Group discussions**