THE BIOLOGICAL PHYSICIST

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This issue of THE BIOLOGICAL PHYSICIST brings you all the information you need to make the most of the APS March Meeting. There's a list of DBP-sponsored sessions on page 2, followed by announcements for the DBP Business Meeting, Student Travel Grant Awardees, and top contenders in the Image Competition. Plus, PRE and PRL Highlights, job ads, and a conference announcement. Enjoy, and see you in Pittsburgh!

– SB

MARCH MEETING HIGHLIGHTS

DBP Members have all surely been combing the online Epitome to make up their schedules for next week. But suppose you've missed something? Here's a list of all the DBP-sponsored sessions this year. The list is online, with links to all speakers and abstracts, at http://meetings.aps.org/Meeting/MAR09/sessionindex2?SponsorID=DBP.

Session A
A7. Systems Biology of Natural and Synthetic Circuits
A39. Cellular Biomechanics I
A40. Proteins: Structure and Functions I

Session B
B7. Bacterial Growth Laws and Systems Biology
B39. Cellular Biomechanics II
B40. Proteins: Structure and Function II

Session D
D39. Focus Session: Noise and Fluctuations in Biochemical Networks
D40. Nucleic Acids: Packaging, Ejection and Translocation

Session H
H3. New Frontiers in Biomolecular Physics
H7. Cellular Imaging at the Nanometer Scale
H39. Lipid Bilayers: Structure and Function I
H40. Biological Physics I

Session J
J7. Complex Cellular Biological Networks
J39. Lipid Bilayers: Structure and Function II
J40. Biological Physics II

Session L
L7. Mechanics of Biomolecular Systems I
L9. Focus Session: Systems Far from Equilibrium II
L39. Focus Session: Theories and Simulations for Biomolecular Dynamics in Cell-like Environments
L40. Nucleic Acids: Structure, Function and Dynamics

Session P
P39. Self-Organization in Biological Cells and Tissues I
P40. Theoretical and Computational Biophysics

Session Q
Q7. Physics of the Immune System
Q39. Physical Mechanisms of Membrane Remodeling
Q40. Neural Computation

Session T
T5. Industrial Biophysics
T39. Focus Session: Physical Virology
T40. Focus Session: Knots and Loops in Biomolecules

Session V
V1. Noise in Biological Systems
V8. The Physics of Imaging and Radiotherapy
V18. Focus Session: Physics of Green Polymers and of Biocompatibility
V39. Biological Networks and Systems Biology

Session W
W3. Physics of Circulating Tumor Cells and Metastasis
W7. Information Theory in Biology
W39. Quantitative Biology
W40. Single Molecule Biophysics

Session X
X7. DNA Loop Formation, Nucleosome Positioning and Transcriptional Regulation
X39. Focus Session: Crystal Growth of and Moderated by Proteins
X40. Proteins in Membranes

Session Y
Y5. Self-Organization in Biological Cells and Tissues II
Y39. Techniques in Biophysics
Y40. Physiological and Medical Physics

Session Z
Z3. Non-viral Based Gene Delivery Systems: Opportunities, Obstacles and Challenges
Z4. Biological Polyelectrolytes
Z7. Nanoprobes of Molecules and Cells
Z8. Statistical Physics in Biology

SPECIAL DBP MARCH MEETING ANNOUNCEMENT

Annual Business Meeting, Division of Biological Physics, APS

Tuesday, March 17, 2009, 5:45-6:45 pm,
Pittsburgh Convention Center, Room 412.
Light refreshments provided. Attendees sign in.
Meeting Chair: James Glazier, DBP Chair

AGENDA

1. Welcoming remarks.

2. Awards:
Announcement of winners of the 2009 Shirley Chan Student Travel Grants.
Announcement of winners of the 2009 Image Gallery Competition, presentation of prize(s) and certificate(s).

3. Reports by Tom Nordlund, Secretary-Treasurer:
(a) Financial reports for 2008 *vs*. 2007.
(b) Support for speakers in 2009.
(c) Report on DBP membership, profile and growth.

4. Highlights & Initiatives in the year 2008-2009
Opportunities Workshop in BP (continuing): Funded by Agouron Foundation.
Recruitment Drive: "free" 1st-year DBP membership for newcomers (F. Salsbury).
Announcement of new DBP Thesis Award program.
Announcement of Newsletter Editor and Request for Contributions/Suggestions (Bahar).
Announcement of new Fellowship Committee, Discussion of Fellowship nomination procedure.

5. Presentation of 2008 APS Fellows sponsored by the DBP, with certificates and pins. (Glazier):
Rafael **Bruschweiler**, Hans **Othmer**, Gabor **Forgacs**, Sunney **Xie**, Terence **Hwa**, Joseph A. **Zasadzinski**, and Vijay **Pande**

6. Report from the 2009 Executive Committee Meeting (Nordlund, Glazier).

7. Open discussion from DBP members on non-scientific business issues:
Request for suggestions for additional services to members by DBP.

8. Election results: Vice-Chair, Councillor, Members-at-Large.

9. Introduction of the DBP Chair for 2009-10: Stephen Quake

Adjourn.

SPECIAL DBP MARCH MEETING ANNOUNCEMENTS

Congratulations to the Winners of the 2009 Shirley Chan Student Travel Grants

Edward Banigan, University of Pennsylvania
Eric Botello, Rice University
Yeliz Celik, Ohio University
Jeffrey Fitzgerald, Univ of California, San Diego
Will Guest, Univ. of British Columbia
Yunfen He, SUNY Buffalo
Ziya Kalay, Univ. of New Mexico
Pablo Delfino Perez, Univ. of Florida
Dipak Rimal, Florida International University
Konstantinos Tsekouras, Rice University
Norman Yao, Harvard University

These students are first authors of oral or poster presentations at the 2009 March Meeting of the APS. They will be recognized at the Business Meeting on Tuesday, March 17.

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2009 Image Gallery Competition

View the top five entries at:

http://ewald.cas.usf.edu/~davidra/dbp.images/jun.zhang.081125/Img1322.jpg

http://ewald.cas.usf.edu/~davidra/dbp.images/jun.zhang.081125/Img1092edit.jpg

http://ewald.cas.usf.edu/~davidra/dbp.images/goldstein.090201/Waltzing_Volvox_APS.gif

http://ewald.cas.usf.edu/~davidra/dbp.images/sandersius.081126/Shimmering_Substance.gif

http://ewald.cas.usf.edu/~davidra/dbp.images/yang.090204/YZimage_gallery.ppt#2

PRL HIGHLIGHTS

Soft Matter, Biological, &
Inter-disciplinary Physics Articles from
Physical Review Letters

5 December 2008
Vol 101, Number 23, Articles (23xxxx)
Articles published 29 Nov - 5 Dec 2008
http://scitation.aip.org/dbt/dbt.jsp?KEY=PRLTAO&Volume=101&Issue=23

Confinement Effect on Interparticle Potential in Nematic Colloids
Mojca Vilfan, Natan Osterman, Martin Čopič, Miha Ravnik, Slobodan Žumer, Jurij Kotar, Dušan Babič, and Igor Poberaj
Published 4 December 2008 // 237801

Thermotropic Biaxial Liquid Crystalline Phases in a Mixture of Attractive Uniaxial Rod and Disk Particles
Alejandro Cuetos, Amparo Galindo, and George Jackson
Published 4 December 2008 // 237802

Coordinated Chemomechanical Cycles: A Mechanism for Autonomous Molecular Motion
S. J. Green, J. Bath, and A. J. Turberfield
Published 3 December 2008 // 238101
See Also: Phys. Rev. Focus

Fourier Transform Light Scattering of Inhomogeneous and Dynamic Structures
Huafeng Ding, Zhuo Wang, Freddy Nguyen, Stephen A. Boppart, and Gabriel Popescu
Published 3 December 2008 // 238102

Chiral Control of Electron Transmission through Molecules
Spiros S. Skourtis, David N. Beratan, Ron Naaman, Abraham Nitzan, and David H. Waldeck
Published 5 December 2008 // 238103

Glass Transition and Aging in Dense Suspensions of Thermosensitive Microgel Particles
Eko H. Purnomo, Dirk van den Ende, Siva A. Vanapalli, and Frieder Mugele
Published 2 December 2008 // 238301

12 December 2008
Vol 101, Number 24, Articles (24xxxx)
Articles published 6 Dec- 12 Dec 2008
http://scitation.aip.org/dbt/dbt.jsp?KEY=PRLTAO&Volume=101&Issue=24

Magnetic-Field Induced Isotropic to Nematic Liquid Crystal Phase Transition
T. Ostapenko, D. B. Wiant, S. N. Sprunt, A. Jákli, and J. T. Gleeson
Published 10 December 2008 // 247801

Electrically Induced Tilt in Achiral Bent-Core Liquid Crystals
Alexey Eremin, Stephan Stern, and Ralf Stannarius
Published 12 December 2008 // 247802

Transition from Rolling to Jamming in Thin Granular Layers
C. Marone, B. M. Carpenter, and P. Schiffer
Published 10 December 2008 // 248001

Rheology of Confined Granular Flows: Scale Invariance, Glass Transition, and Friction Weakening
P. Richard, A. Valance, J.-F. Métayer, P. Sanchez, J. Crassous, M. Louge, and R. Delannay
Published 12 December 2008 // 248002

Elasticity of Cisplatin-Bound DNA Reveals the Degree of Cisplatin Binding
Nam-Kyung Lee, Jin-Sung Park, Albert Johner, Sergei Obukhov, Ju-Yong Hyon, Kyoung J. Lee, and Seok-Cheol Hong
Published 9 December 2008 // 248101

Molecular Dynamics Characterization of Protein Crystal Contacts in Aqueous Solutions
Giuseppe Pellicane, Graham Smith, and Lev Sarkisov
Published 10 December 2008 // 248102

Temporal Analysis of Active and Passive Transport in Living Cells
Delphine Arcizet, Börn Meier, Erich Sackmann, Joachim O. Rädler, and Doris Heinrich
Published 12 December 2008 // 248103

New Dynamical Window onto the Landscape for Forced Protein Unfolding
Zu Thur Yew, Tom McLeish, and Emanuele Paci
Published 12 December 2008 // 248104

Temporal Precision of Spike Response to Fluctuating Input in Pulse-Coupled Networks of Oscillating Neurons
Jun-nosuke Teramae and Tomoki Fukai
Published 12 December 2008 // 248105

Motional Coherence in Fluid Phospholipid Membranes
Maikel C. Rheinstädter, Jhuma Das, Elijah J. Flenner, Beate Brüning, Tilo Seydel, and Ioan Kosztin
Published 12 December 2008 // 248106

Model for Stretching and Unfolding the Giant Multidomain Muscle Protein Using Single-Molecule Force Spectroscopy
Douglas B. Staple, Stephen H. Payne, Andrew L. C. Reddin, and Hans Jürgen Kreuzer
Published 8 December 2008 // 248301

19 December 2008

Vol 101, Number 25, Articles (25xxxx)
Articles published 13 Dec- 19 Dec 2008
http://scitation.aip.org/dbt/dbt.jsp?KEY=PRLTAO&Volume=101&Issue=25

Enhancement of Water Permeation across a Nanochannel by the Structure outside the Channel
Xiaojing Gong, Jingyuan Li, He Zhang, Rongzheng Wan, Hangjun Lu, Shen Wang, and Haiping Fang
Published 15 December 2008 // 257801

Correlation between Particle Motion and Voronoi-Cell-Shape Fluctuations during the Compaction of Granular Matter
Steven Slotterback, Masahiro Toiya, Leonard Goff, Jack F. Douglas, and Wolfgang Losert
Published 19 December 2008 // 258001

Self-Templated Nucleation in Peptide and Protein Aggregation
Stefan Auer, Christopher M. Dobson, Michele Vendruscolo, and Amos Maritan
Published 17 December 2008 // 258101

Spatial Variability Enhances Species Fitness in Stochastic Predator-Prey Interactions
Ulrich Dobramysl and Uwe C. Täuber
Published 18 December 2008 // 258102

Slip and Flow of Hard-Sphere Colloidal Glasses
P. Ballesta, R. Besseling, L. Isa, G. Petekidis, and W. C. K. Poon
Published 15 December 2008 // 258301

Influence of Boundary Conditions on Yielding in a Soft Glassy Material
Thomas Gibaud, Catherine Barentin, and Sébastien Manneville
Published 19 December 2008 // 258302

Bundle Formation in Polyelectrolyte Brushes
J. U. Günther, H. Ahrens, S. Förster, and C. A. Helm
Published 19 December 2008 // 258303

Fixation and Consensus Times on a Network: A Unified Approach
G. J. Baxter, R. A. Blythe, and A. J. McKane
Published 18 December 2008 // 258701

31 December 2008

Vol 101, Number 26, Articles (26xxxx)
Articles published 22 Dec- 31 Dec 2008
http://scitation.aip.org/dbt/dbt.jsp?KEY=PRLTAO&Volume=101&Issue=26

Alternative View of Dynamic Arrest in Colloid-Polymer Mixtures
R. Juárez-Maldonado and M. Medina-Noyola
Published 22 December 2008 // 267801

Scaling Analysis of Dynamic Heterogeneity in a Supercooled Lennard-Jones Liquid
Richard S. L. Stein and Hans C. Andersen
Published 30 December 2008 // 267802

Enhanced Diffusion and Ordering of Self-Propelled Rods

Aparna Baskaran and M. Cristina Marchetti
Published 22 December 2008 // 268101

Fluctuations in Mass-Action Equilibrium of Protein Binding Networks
Koon-Kiu Yan, Dylan Walker, and Sergei Maslov
Published 30 December 2008 // 268102

How Colored Environmental Noise Affects Population Extinction
Alex Kamenev, Baruch Meerson, and Boris Shklovskii
Published 30 December 2008 // 268103

Origin of Pareto-like Spatial Distributions in Ecosystems
Alon Manor and Nadav M. Shnerb
Published 31 December 2008 // 268104

Why Do Granular Materials Stiffen with Shear Rate? Test of Novel Stress-Based Statistics
R. P. Behringer, Dapeng Bi, B. Chakraborty, S. Henkes, and R. R. Hartley
Published 31 December 2008 // 268301

9 January 2009

Vol 102, Number 1, Articles (01xxxx)
Articles published 1 Jan - 9 Jan 2009
http://scitation.aip.org/dbt/dbt.jsp?KEY=PRLTAO&Volume=102&Issue=1

Three-Dimensional Visualization of a Human Chromosome Using Coherent X-Ray Diffraction
Yoshinori Nishino, Yukio Takahashi, Naoko Imamoto, Tetsuya Ishikawa, and Kazuhiro Maeshima
Published 5 January 2009 // 018101

Chemically Triggered Ejection of Membrane Tubules Controlled by Intermonolayer Friction
J.-B. Fournier, N. Khalifat, N. Puff, and M. I. Angelova
Published 7 January 2009 // 018102

Dynamic Arrest in Charged Colloidal Systems Exhibiting Large-Scale Structural Heterogeneities
C. Haro-Pérez, L. F. Rojas-Ochoa, R. Castañeda-Priego, M. Quesada-Pérez, J. Callejas-Fernández, R. Hidalgo-Álvarez, and V. Trappe
Published 5 January 2009 // 018301

Fundamental Measure Theory for Inhomogeneous Fluids of Nonspherical Hard Particles
Hendrik Hansen-Goos and Klaus Mecke
Published 7 January 2009 // 018302

Theory for Wavelength-Resolved Photon Emission Statistics in Single-Molecule Fluorescence Spectroscopy
Golan Bel and Frank L. H. Brown
Published 9 January 2009 // 018303

How to Make a Fragile Network Robust and Vice Versa
André A. Moreira, José S. Andrade, Jr., Hans J. Herrmann, and Joseph O. Indekeu
Published 9 January 2009 // 018701

16 January 2009

Vol 102, Number 2, Articles (02xxxx)
Articles published 10 Jan - 16 Jan 2009
http://scitation.aip.org/dbt/dbt.jsp?KEY=PRLTAO&Volume=102&Issue=2

Charge Segregation Depends on Particle Size in Triboelectrically Charged Granular Materials
Keith M. Forward, Daniel J. Lacks, and R. Mohan Sankaran
Published 16 January 2009 // 028001

Shear-Induced Dynamic Polarization and Mesoscopic Structure in Suspensions of Polar Nanorods
Sebastian Heidenreich, Siegfried Hess, and Sabine H. L. Klapp
Published 13 January 2009 // 028301

Torsional Stiffness of Single Superparamagnetic Microspheres in an External Magnetic Field
Daniel Klaue and Ralf Seidel
Published 13 January 2009 // 028302

23 January 2009

Vol 102, Number 3, Articles (03xxxx)
Articles published 17 Jan - 23 Jan 2009
http://scitation.aip.org/dbt/dbt.jsp?KEY=PRLTAO&Volume=102&Issue=3

Effects of Self-Assembly on Diffusion Mechanisms of Triblock Copolymers in Aqueous Solution
Konstantin Ulrich, Petrik Galvosas, Jörg Kärger, and Farida Grinberg
Published 23 January 2009 // 037801

Energy Transport in Jammed Sphere Packings
Ning Xu, Vincenzo Vitelli, Matthieu Wyart, Andrea J. Liu, and Sidney R. Nagel
Published 21 January 2009 // 038001

Exact Phase Diagram of a Quasispecies Model with a Mutation Rate Modifier
Apoorva Nagar and Kavita Jain
Published 20 January 2009 // 038101

Membrane Tension Lowering Induced by Protein Activity
M. D. El Alaoui Faris, D. Lacoste, J. Pécréaux, J.-F. Joanny, J. Prost, and P. Bassereau
Published 21 January 2009 // 038102

Evolutionary Model of Species Body Mass Diversification
A. Clauset and S. Redner
Published 22 January 2009 // 038103

Suppressed Segmental Relaxation as the Origin of Strain Hardening in Polymer Glasses
Kang Chen and Kenneth S. Schweizer
Published 20 January 2009 // 038301

Unusual Crystallization Kinetics in a Hard Sphere Colloid-Polymer Mixture
Thomas Palberg, Andreas Stipp, and Eckhard Bartsch
Published 21 January 2009 // 038302

Time-Dependent Nonlinear Optical Susceptibility of an Out-of-Equilibrium Soft Material
Neda Ghofraniha, Claudio Conti, Giancarlo Ruocco, and Francesco Zamponi
Published 23 January 2009 // 038303

Generalized Bose-Fermi Statistics and Structural Correlations in Weighted Networks
Diego Garlaschelli and Maria I. Loffredo
Published 22 January 2009 // 038701

30 January 2009

Vol 102, Number 4, Articles (42xxxx)
Articles published 24 Jan - 30 Jan 2009
http://scitation.aip.org/dbt/dbt.jsp?KEY=PRLTAO&Volume=102&Issue=4

Thermal (In)Stability of Type I Collagen Fibrils
S. G. Gevorkian, A. E. Allahverdyan, D. S. Gevorgyan, and A. L. Simonian
Published 26 January 2009 // 048101

Zero-One Survival Behavior of Cyclically Competing Species
Maximilian Berr, Tobias Reichenbach, Martin Schottenloher, and Erwin Frey
Published 28 January 2009 // 048102

Inferring Maps of Forces inside Cell Membrane Microdomains
J.-B. Masson, D. Casanova, S. Türkcan, G. Voisinne, M. R. Popoff, M. Vergassola, and A. Alexandrou
Published 29 January 2009 // 048103

Self-Starting Micromotors in a Bacterial Bath
Luca Angelani, Roberto Di Leonardo, and Giancarlo Ruocco
Published 30 January 2009 // 048104

Simple Quantitative Model for the Reversible Association of DNA Coated Colloids
Rémi Dreyfus, Mirjam E. Leunissen, Roujie Sha, Alexei V. Tkachenko, Nadrian C. Seeman, David J. Pine, and Paul M. Chaikin
Published 27 January 2009 // 048301

Visualizing Polymer Crystallization in Ultrathin Layers Using a Single-Macromolecule Tracking Method
Wuguo Bi, Jefri S. Teguh, and Edwin K. L. Yeow
Published 29 January 2009 // 048302

Stripes, Zigzags, and Slow Dynamics in Buckled Hard Spheres
Yair Shokef and Tom C. Lubensky
Published 29 January 2009 // 048303

PRE HIGHLIGHTS

Biological Physics Articles from

Physical Review E

December 2008

Volume 78, Number 6, Articles (06xxxx)

http://scitation.aip.org/dbt/dbt.jsp?KEY=PLEEE8&Volume=78&Issue=6

RAPID COMMUNICATIONS

Twist-stretch correlation of DNA
Maryam Ghorbani and Farshid Mohammad-Rafiee
Published 15 December 2008 // 060901(R)

Population mixture model for nonlinear telomere dynamics
Shalev Itzkovitz, Liran I. Shlush, Dan Gluck, and Karl Skorecki
Published 23 December 2008 // 060902(R)

ARTICLES

Dynamical transition, hydrophobic interface, and the temperature dependence of electrostatic fluctuations in proteins
David N. LeBard and Dmitry V. Matyushov
Published 1 December 2008 // 061901

Dynamics and evolution of stochastic bistable gene networks with sensing in fluctuating environments
Andre S. Ribeiro
Published 2 December 2008 // 061902

Cooperation of sperm in two dimensions: Synchronization, attraction, and aggregation through hydrodynamic interactions
Yingzi Yang, Jens Elgeti, and Gerhard Gompper
Published 3 December 2008 // 061903

Macroscopic dynamics of biological cells interacting via chemotaxis and direct contact
Pavel M. Lushnikov, Nan Chen, and Mark Alber
Published 3 December 2008 // 061904

Folding proteins by first-passage-times-optimized replica exchange
Walter Nadler, Jan H. Meinke, and Ulrich H. E. Hansmann
Published 3 December 2008 // 061905

Influence of synaptic interaction on firing synchronization and spike death in excitatory neuronal networks
Sheng-Jun Wang, Xin-Jian Xu, Zhi-Xi Wu, Zi-Gang Huang, and Ying-Hai Wang
Published 3 December 2008 // 061906

Flapping motion and force generation in a viscoelastic fluid
Thibaud Normand and Eric Lauga
Published 3 December 2008 // 061907

Subthreshold dynamics of a single neuron from a Hamiltonian perspective
M. T. Wilson and D. A. Steyn-Ross
Published 4 December 2008 // 061908

Amide-I lifetime-limited vibrational energy flow in a one-dimensional lattice of hydrogen-bonded peptide units
Vincent Pouthier
Published 4 December 2008 // 061909

Atomic hydrodynamics of DNA: Coil-uncoil-coil transitions in a wall-bounded shear flow
William C. Sandberg and Guan M. Wang
Published 5 December 2008 // 061910

Dynamics of DNA translocation through an attractive nanopore
Kaifu Luo, Tapio Ala-Nissila, See-Chen Ying, and Aniket Bhattacharya
Published 9 December 2008 // 061911

Duplication count distributions in DNA sequences
Suzanne S. Sindi, Brian R. Hunt, and James A. Yorke
Published 11 December 2008 // 061912

Strength limit of entropic elasticity in beta-sheet protein domains
Sinan Keten and Markus J. Buehler
Published 16 December 2008 // 061913

Size and shape effects on diffusion and absorption of colloidal particles near a partially absorbing sphere: Implications for uptake of nanoparticles in animal cells
Wendong Shi, Jizeng Wang, Xiaojun Fan, and Huajian Gao
Published 16 December 2008 // 061914

Position-dependent stochastic diffusion model of ion channel gating
S. R. Vaccaro
Published 17 December 2008 // 061915

Simulation analysis of intermodal sodium channel function
Shangyou Zeng and Peter Jung
Published 17 December 2008 // 061916

Multistability in networks of Hindmarsh-Rose neurons
R. Erichsen, Jr. and L. G. Brunnet
Published 18 December 2008 // 061917

Translocation dynamics with attractive nanopore-polymer interactions
Kaifu Luo, Tapio Ala-Nissila, See-Chen Ying, and Aniket Bhattacharya
Published 19 December 2008 // 061918

Monte Carlo study on ultrasound backscattering by three-dimensional distributions of red blood cells
Ratan K. Saha and Guy Cloutier
Published 19 December 2008 // 061919

Evolution models with base substitutions, insertions, deletions, and selection
D. B. Saakian
Published 22 December 2008 // 061920

Quasispecies theory for horizontal gene transfer and recombination
Enrique Muñoz, Jeong-Man Park, and Michael W. Deem
Published 23 December 2008 // 061921

Enhancement of transport in DNA-like systems induced by backbone disorder
Ai-Min Guo, Shi-Jie Xiong, Zhi Yang, and Hong-Jun Zhu
Published 29 December 2008 // 061922

Calculation of the hole mobilities of the three homopolynucleotides, poly(guanilic acid), poly(adenilic acid), and polythymidine in the presence of water and Na+ ions
Attila Bende, Ferenc Bogár, Ferenc Beleznay, and János Ladik
Published 29 December 2008 // 061923

Modulation of intermembrane interaction and bending rigidity of biomembrane models via carbohydrates investigated by specular and off-specular neutron scattering
Emanuel Schneck, Florian Rehfeldt, Rafael G. Oliveira, Christian Gege, Bruno Demé, and Motomu Tanaka
Published 30 December 2008 // 061924

Force-induced misfolding in RNA
M. Manosas, I. Junier, and F. Ritort
Published 31 December 2008 // 061925

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Volume 79, Number 1, Articles (01xxxx)
http://scitation.aip.org/dbt/dbt.jsp?KEY=PLEEE8&Volume=79&Issue=1

RAPID COMMUNICATIONS

Spontaneous calcium signals induced by gap junctions in a network model of astrocytes
V. B. Kazantsev
Published 14 January 2009 // 010901(R)

ARTICLES

Transmembrane voltage analyses in spheroidal cells in response to an intense ultrashort electrical pulse

Q. Hu and R. P. Joshi
Published 7 January 2009 // 011901

1/f noise in reaction times: A proposed model based on Piéron's law and information processing
José M. Medina
Published 7 January 2009 // 011902

Translocation of a stiff polymer in a microchannel
A. ten Bosch and P. Cheyssac
Published 8 January 2009 // 011903

Noise-assisted spike propagation in myelinated neurons
Anna Ochab-Marcinek, Gerhard Schmid, Igor Goychuk, and Peter Hänggi
Published 9 January 2009 // 011904

Surface fractals in liposome aggregation
Sándalo Roldán-Vargas, Ramon Barnadas-Rodríguez, Manuel Quesada-Pérez, Joan Estelrich, and José Callejas-Fernández
Published 12 January 2009 // 011905

Rods-on-string idealization captures semiflexible filament dynamics
Preethi L. Chandran and Mohammad R. K. Mofrad
Published 13 January 2009 // 011906

Subdiffusion and lateral diffusion coefficient of lipid atoms and molecules in phospholipid bilayers
Elijah Flenner, Jhuma Das, Maikel C. Rheinstädter, and Ioan Kosztin
Published 14 January 2009 // 011907

Dissociation lifetime studies of doubly deprotonated angiotensin peptides
G. Aravind, L. Lammich, and L. H. Andersen
Published 15 January 2009
011908

Physics of ion beam cancer therapy: A multiscale approach
Andrey V. Solov'yov, Eugene Surdutovich, Emanuele Scifoni, Igor Mishustin, and Walter Greiner
Published 15 January 2009 // 011909

Delay-induced destabilization of entrainment of nerve impulses on ephaptically coupled nerve fibers
Mohit H. Adhikari, John K. McIver, and Evangelos A. Coutsias
Published 16 January 2009 // 011910

Transient Turing patterns in a neural field model
A. J. Elvin, C. R. Laing, and M. G. Roberts
Published 20 January 2009 // 011911

Pressure effects on structures formed by entropically driven self-assembly: Illustration for denaturation of proteins
Takashi Yoshidome, Yuichi Harano, and Masahiro Kinoshita
Published 20 January 2009 // 011912

Thermodynamics of a model for RNA folding
Matías G. dell'Erba and Guillermo R. Zemba
Published 21 January 2009 // 011913

Noise shaping in neural populations
Oscar Ávila Åkerberg and Maurice J. Chacron
Published 21 January 2009 // 011914

Rapidly detecting disorder in rhythmic biological signals: A spectral entropy measure to identify cardiac arrhythmias
Phillip P. A. Staniczenko, Chiu Fan Lee, and Nick S. Jones
Published 21 January 2009 // 011915

Fluctuations in protein synthesis from a single RNA template: Stochastic kinetics of ribosomes
Ashok Garai, Debashish Chowdhury, and T. V. Ramakrishnan
Published 21 January 2009 // 011916

Operation modes of the molecular motor kinesin
S. Liepelt and R. Lipowsky
Published 22 January 2009 // 011917

Persistent fluctuations of activity in undriven continuum neural field models with power-law connections
C. A. Brackley and M. S. Turner
Published 22 January 2009 // 011918

Stability of elastic icosadeltahedral shells under uniform external pressure: Application to viruses under osmotic pressure
Antonio Šiber and Rudolf Podgornik
Published 26 January 2009 // 011919

Processive hand-over-hand motion of homodimeric nanomotors induced by interaction between two monomeric components and thermal noise
Ping Xie
Published 27 January 2009 // 011920

Quantitative analysis of virus and plasmid trafficking in cells
Thibault Lagache, Emmanuel Dauty, and David Holcman
Published 28 January 2009 // 011921

Evoked magnetic fields of magnetoencephalography and their statistical property
Kuniharu Kishida
Published 29 January 2009 // 011922

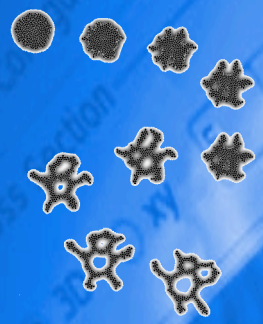
Noisy signaling through promoter logic gates
Moritz Gerstung, Jens Timmer, and Christian Fleck
Published 29 January 2009 // 011923

Semiflexible chains in confined spaces
Greg Morrison and D. Thirumalai
Published 30 January 2009 // 011924

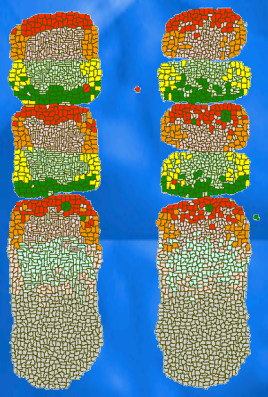
BRIEF REPORTS

Solitonlike base pair opening in a helicoidal DNA: An analogy with a helimagnet and a cholesteric liquid crystal
M. Daniel and V. Vasumathi
Published 20 January 2009 // 012901

Training Workshop
Developing Multi-Cell Developmental and Biomedical Simulations with CompuCell3D
August 17th-21st 2009
Indiana University, Biocomplexity Institute, Bloomington, IN, USA



Background: Modeling is becoming an integral part of contemporary bioscience. The Glazier-Graner-Hogeweg (*GGH*) model as implemented in the modeling environment, CompuCell3D allows researchers to rapidly build complex models of multi-cell processes in development and disease with user-selectable resolution, from sub-cellular compartmental models to continuum models of tissues. CompuCell3D's use of CC3D-ML, BioLogo and Python model-specification allows compact description of models for publication, validation and sharing. CompuCell3D is open source, allowing users to extend, improve, validate, modify and share the core software. For more information on the GGH and CompuCell3D, please visit: http://www.compucell3d.org/

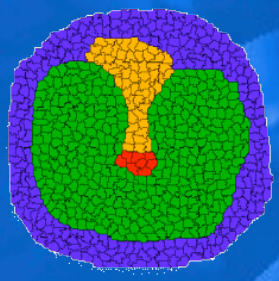


Goal: By the end of the week, participants will have implemented a basic simulation of the particular biological problem they work on. Post-course support and collaboration will be available to continue simulation development.

Topics: Introduction to GGH modeling. Applications of GGH modeling and overview of published work. Introduction to CompuCell3D. Python and BioLogo scripting. Basics of model building. Extending CompuCell3D. Building a basic simulation of your system.

Format: The workshop will consist of a limited number of lectures and extended hands-on computer tutorials.

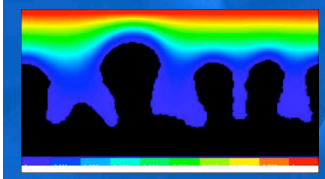
Instructors: James A. Glazier, Maciej Swat, Benjamin Zaitlen, Abbas Shirinifard, Nikodem Poplawski, Randy Heiland (Biocomplexity Institute, Indiana University)



Target Audience: Experimental Biologists, Medical Scientists, Biophysicists, Mathematical Biologists and Computational Biologists from advanced undergraduates to senior faculty, who have an interest in developing multi-cell computational models, or learning how such models might help their research. No specific programming or mathematical experience is required, though familiarity with some modeling environment (e.g. Mathematica®, Maple®, Matlab®) and how to represent basic concepts like diffusion and chemical reactions mathematically, would be helpful.

Fees and Support: The basic registration fee of $500 will cover workshop participation, workshop materials and lunches. Partial support for registration, travel and hotel costs may be available.

Application and Registration: Enrollment is limited and by application only. To apply, please send a c.v., a brief statement of your current research interests and of the specific problem you would like to model. Students and postdocs should also include a letter of support from their current advisor. If travel support is being requested, please include a statement documenting need and amounts requested. Please submit all application materials electronically to Maciej Swat (mswat@indiana.edu) by June 30th, 2008. Funding will be awarded on a first come first serve basis.



Facilities: Participants will have access to an OSX cluster and will be able to connect to the Internet using their own laptops.

For More Information, Please Contact: Maciej Swat (mswat@indiana.edu).

Or visit: www.compucell3d.org

the biocomplexity institute