

THE BIOLOGICAL PHYSICIST

The Newsletter of the Division of Biological Physics of the American Physical Society

Vol 4 № 2 June 2004

DIVISION OF BIOLOGICAL PHYSICS EXECUTIVE COMMITTEE

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In this Issue

**MARCH MEETING RECAP
MINUTES OF THE DBP BUSINESS MEETING.....2**

PRE HIGHLIGHTS6


Due to your editor's recent move, this issue of
THE BIOLOGICAL PHYSICIST
is a no-frills presentation of news, without embellishment.
There are, however, a large number of lab profiles,
interviews and essays waiting in the wings. These will be
arriving at an Inbox near you, beginning in August 2004.

Have a great summer!



DBP BUSINESS MEETING: THE MINUTES

Raymond Goldstein, DBP Chair, opened the meeting at 5:30 pm, March 23, 2004.

Ray announced the membership for 2003 was up about 10% from last year.

The sessions sponsored by DBP in this Meeting were very successful and well attended. There was about a 40% increase of contributed abstracts from last year.

The 2005 March Meeting will be in Los Angeles.

The next Vice Chair will decide the tutorial topics. Suggestions are welcome.

Bob Callender, Biophysical Society representative, would like to have these sessions convened jointly at some point.

Finance figures, supplied by the outgoing Secretary-Treasurer, Paul Gailey, are as follows:

In 2003, DBP received \$17,247.99 total income from 1522 members' dues (\$7610.00), March Meeting (\$6289.71) and investment income (\$3348.28).

DBP total expenses were \$18,383.64 with the following categories: Executive Committee meeting and reception (\$3630.76), student travel grant (\$2750.00), invited foreign speakers (\$2800.00 for travel & \$3300.00 for registration waivers), lobbying contribution (\$4000.00), travel for sorters (\$1735.93) and postage/printing etc (\$176.95).

The net loss for 2003 was \$1,135.65. Basically the budget was balanced for 2003. As of February, 2004, DBP has about \$47 K in reserve.

Peter Wolynes, UC San Diego, is the recipient of 2004 Biological Physics Prize.

However, DBP continues to have problem obtaining an endowment fund for the biannual Biological Physics Prize. We must raise an endowment fund within two years for the 2006 prize and future years.

From the floor, Eli Greenbaum, Oakridge Lab, commented that long time ago, there were joint meetings for APS and Biophysics Society. But the experience was so hectic that the organizers did not want to repeat a joint meeting again. He questioned about the current feeling. Bob Eisenberg, DBP Councilor to APS, answered that the current feeling would be more towards a joint meeting and clarified that it would be joint scientifically, not administratively. Scheduling the two meetings in similar locations and time would also be the challenge.

Ray announced 7 new APS Fellows nominated by DBP in 2003. Each new Fellow received the Fellow certificate and a pin. The names and citations are as following:

Ditto, William, University of Florida

Citation: For achievements in experimental nonlinear dynamics, especially as applied to

biological systems such as the heart and the brain.

Garwin, Laura Justine, Harvard University

Citation: For her outstanding contributions in increasing the strength and prestige of physics and biological physics at *Nature*, and for her service to the physics and biology communities, as a bridge between these disciplines.

Israelachvili, Jacob Nissim, University of California, Santa Barbara

Citation: For developing experimental techniques for measuring interparticle forces in liquids that have led to the discovery and elucidation of new types of intermolecular and surface interactions in complex colloidal and biological systems.

Longtin, Andre, University of Ottawa, Canada

Citation: For the development of statistical physics methods to interpret the coding of sensory data by nerve cells.

Nelson, Philip C., University of Pennsylvania

Citation: For contributions to the understanding of soft biomaterials, quantum fields, and superstrings, using geometrical and topological methods.

Schlichting, Ilme, Max Planck Institute for Medical Research, Germany

Citation: For her outstanding contributions in protein crystallography and structural biology.

Xie, Aihua, Oklahoma State University

Citation: For her outstanding contributions to experimental studies of protein dynamics, in particular the use of time-resolved infrared studies to probe the dynamics of photosensitive proteins.

It was announced that DBP would have a social dinner, an informal gathering for members at Buffet Maharajah Restaurant, organized by our local Member-at-Large, Leon Glass, on Wednesday evening [March 24], a “Buy-Your-Own” event.

Ray asked for suggestions from attending members for tutorial topics. The following topics were suggested: (1) Sensors and perception; (2) Experimental techniques, PCR; (3) Biosensors, microfluids.

Ray asked members to send letters to congressmen. The form letters and congressmen addresses are available by APS at its on-site computer terminals.

Ray introduced the incoming DBP Chair, Denis Rousseau, and Chair Elect, Peter Jung, for 2004-5. Ray gave the meeting to Denis, and became the Immediate Past Chair.

Denis Rousseau thanked Ray Goldstein for a job well done, thanked the volunteered chairs for all the meeting sessions, and asked for good suggestions for 2005 sessions and focus sessions.

Robert Austin, the retiring Past Chair and the Chair of Election Committee, announced the 2004 election results:

Vice-Chair: Marilyn Gunner, will serve as Vice Chair till March 2005.

Members-at-Large: Lois Pollack and Steve Quake, will serve till March 2007.

Secretary-Treasurer: Shirley Chan, will serve till March 2008.

Meeting adjourned at 5:50 pm, March 23, 2004.

Recorded by Shirley Chan,
Secretary-Treasurer DBP

2004-2005 DBP Members of Executive Committee

Chair: Denis Rousseau, term ends 3/2005
Past Chair: Raymond Goldstein, term ends 3/2005
Chair-Elect: Peter Jung, term ends 3/2005
Vice-Chair: Marilyn Gunner, term ends 3/2005
Secretary-Treasurer: Shirley Chan, term ends 3/2008

DBP Councilor to APS: Robert Eisenberg, term ends 12/2004
Members-at-Large:
Leon Glass and Andrea Markelz, terms end

3/2005
Ka Yee Lee and Herbert Levine, terms end 3/2006
Lois Pollack and Stephen Quake, terms end 3/2007

DBP Newsletter & Website

Newsletter Editor: Sonya Bahar
Website Coordinator: Dan Gauthier
Website Assistant: Arlene Markelz

Submitted by Shirley Chan
Secretary-Treasurer, DBP
May 4, 2004

PRE HIGHLIGHTS

Biological Physics articles from Physical Review E

April 2004

Volume 69, Number 4, Articles (04xxxx)

<http://scitation.aip.org/dbt/dbt.jsp?KEY=PLEEE8&Volume=69&Issue=4>

RAPID COMMUNICATIONS

Diffuse scattering provides material parameters and electron density profiles of biomembranes
Yufeng Liu and John F. Nagle
Published 30 April 2004 (4 pages)
040901(R)

ARTICLES

Fields and forces acting on a planar membrane with a conducting channel
Isak Bivas and Christophe Danelon
Published 14 April 2004 (12 pages)
041901

Transcription rate of RNA polymerase under rotary torque
H. Kiryu
Published 16 April 2004 (5 pages)
041902

Thermodynamic modeling of donor splice site recognition in pre-mRNA
Jeffrey A. Garland and Daniel P. Aalberts
Published 26 April 2004 (4 pages)
041903
See Also: Publisher's Note

Attraction between DNA molecules mediated by multivalent ions
E. Allahyarov, G. Gompper, and H. Löwen
Published 28 April 2004 (13 pages)
041904

Nonlinear effects in the torsional adjustment of interacting DNA
A. A. Kornyshev and A. Wynveen
Published 29 April 2004 (14 pages)
041905

Relaxation channels of two-vibron bound states in -helix proteins

V. Pouthier and C. Falvo
Published 29 April 2004 (12 pages)
041906

Population dynamics in the Penna model

J. B. Coe and Y. Mao
Published 29 April 2004 (5 pages)
041907

Discrete molecular dynamics simulations of peptide aggregation

S. Peng, F. Ding, B. Urbanc, S. V. Buldyrev, L. Cruz, H. E. Stanley, and N. V. Dokholyan
Published 29 April 2004 (7 pages)

Learning in neural networks by reinforcement of irregular spiking

Xiaohui Xie and H. Sebastian Seung
Published 30 April 2004 (10 pages)
041909

Analysis of the noise-induced bursting-spiking transition in a pancreatic -cell model

Jacobo Aguirre, Erik Mosekilde, and Miguel A. F. Sanjuán
Published 30 April 2004 (16 pages)
041910

BRIEF REPORTS

Contracted Fisher equation

S. Harris
Published 27 April 2004 (3 pages)
042901

Optimum ion channel properties in the squid giant axon

Robert K. Adair
Published 30 April 2004 (3 pages)
042902

May 2004

Volume 69, Number 5, Articles (05xxxx)

<http://scitation.aip.org/dbt/dbt.jsp?KEY=PLLEE8&Volume=69&Issue=5>

RAPID COMMUNICATIONS

Size of outbreaks near the epidemic threshold

E. Ben-Naim and P. L. Krapivsky
Published 12 May 2004 (4 pages)

050901(R)

ARTICLES

Energy-landscape-model analysis for irreversibility and its pulse-width dependence in cells subjected to a high-intensity ultrashort electric pulse

R. P. Joshi, Q. Hu, K. H. Schoenbach, and S. J. Beebe
Published 4 May 2004 (10 pages)
051901

Elastic deformations of grafted layers with surface stress

A. Nicolas and S. A. Safran
Published 6 May 2004 (7 pages)
051902

Models to analyze small-angle neutron scattering from unilamellar lipid vesicles

Norbert Kuerka, John F. Nagle, Scott E. Feller, and Pavol Balgavý
Published 6 May 2004 (9 pages)
051903

Phase transition of traveling waves in bacterial colony pattern

Joe Yuichiro Wakano, Atsushi Komoto, and Yukio Yamaguchi
Published 12 May 2004 (9 pages)
051904

Dynamics of the minimally frustrated helices determine the hierarchical folding of small helical proteins

M. Compiani, E. Capriotti, and R. Casadio
Published 12 May 2004 (8 pages)
051905

Dynamics of biological molecules irradiated by short x-ray pulses

Stefan P. Hau-Riege, Richard A. London, and Abraham Szoke
Published 18 May 2004 (12 pages)
051906

Polymer-induced bundling of F actin and the depletion force

M. Hosek and J. X. Tang
Published 18 May 2004 (9 pages)
051907

Sampling tissue volumes using frequency-domain photon migration

Frédéric Bevilacqua, Joon S. You, Carole K. Hayakawa, and Vasanth Venugopalan
Published 24 May 2004 (10 pages)
051908

Transmission of stimulus-locked responses in two coupled phase oscillators

Peter A. Tass
Published 24 May 2004 (24 pages)
051909

Percolation and Burgers' dynamics in a model of capillary formation

A. Coniglio, A. de Candia, S. Di Talia, and A. Gamba
Published 24 May 2004 (10 pages)
051910

Analytical study of the effect of recombination on evolution via DNA shuffling

Wei-qun Peng, Herbert Levine, Terence Hwa, and David A. Kessler
Published 24 May 2004 (15 pages)
051911

Role of evolution by natural selection in population dynamics

Michel Droz and Andrzej Pkalski
Published 24 May 2004 (6 pages)
051912

Adaptation and enslavement in endosymbiont-host associations

Marcus R. Frean and Edward R. Abraham
Published 24 May 2004 (6 pages)
051913

Adaptive time-frequency parametrization of epileptic spikes

Piotr J. Durka
Published 25 May 2004 (5 pages)
051914

Patterns in syntactic dependency networks

Ramon Ferrer i Cancho, Ricard V. Solé, and Reinhard Köhler
Published 26 May 2004 (8 pages)
051915

Discerning aggregation in homogeneous ensembles: A general description of photon counting spectroscopy in diffusing systems

Hai-Cang Ren, Noel L. Goddard, Grégoire Altan-Bonnet, and Albert Libchaber
Published 27 May 2004 (12 pages)
051916

Folding and form: Insights from lattice simulations

P. F. N. Faisca, M. M. Telo da Gama, and R. C. Ball
Published 28 May 2004 (8 pages)
051917

Effects of synaptic conductance on the voltage distribution and firing rate of spiking neurons

Magnus J. E. Richardson
Published 28 May 2004 (8 pages)
051918

Hierarchical structure in healthy and diseased human heart rate variability

Emily S. C. Ching, D. C. Lin, and C. Zhang
Published 28 May 2004 (4 pages)
051919

Theoretical and computational methods for the noninvasive detection of gastric electrical source coupling

Andrei Irimia and L. Alan Bradshaw
Published 28 May 2004 (7 pages)
051920

Effect of intracrystalline water on longitudinal sound velocity in tetragonal hen-egg-white lysozyme crystals

M. Tachibana, H. Koizumi, and K. Kojima
Published 28 May 2004 (5 pages)
051921