

THE BIOLOGICAL PHYSICIST

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

Vol 4 No 1 April 2004

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MONTRÉAL... JE ME SOUVIENS...

This issue takes a moment to remember some of the important "DBP moments" of the APS March Meeting. We also bring you the results of the DBP election, an important announcement from HFSP, the call for Symposia and Focus Sessions for the next APS March Meeting, and much more!

Watch for the complete minutes of the DBP Business Meeting, including citations of awards to new fellows, in the June issue.

SB

MARCH MEETING RECAP: in pictures

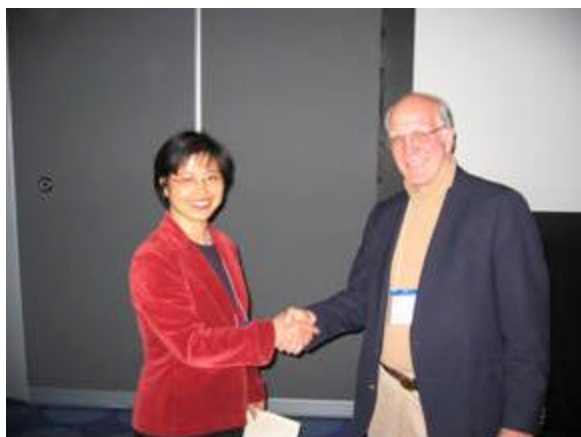


New Fellow Andre Longtin receives his fellowship citation from incoming DBP Chair Denis Rousseau.

Photos by
Jennifer Simonotto
and
Michael Furman



New Fellow Bill Ditto receives his fellowship citation from incoming DBP Chair Denis Rousseau.



New Fellow Aihua Xie receives her fellowship citation from incoming DBP Chair Denis Rousseau.

New Fellows not pictured here include Laura Garwin, Jacob Israelachvili, Phil Nelson, and Ilme Schlichting. The complete text of all the fellowship citations will appear in the June issue of *The Biological Physicist*.



Outgoing DBP Chair Raymond Goldstein welcomes members of DBP to the Business Meeting.



A DBP Family Portrait. Top row: Shirley Chan, Ka Yee C. Lee, Leon Glass. Bottom Row: Bob Austin, Denis Rousseau, Ray Goldstein, Bob Eisenberg and Peter Jung.

MARCH MEETING RECAP TWELVE STUDENT AUTHORS RECEIVE DBP TRAVEL GRANT

Each year, DBP offers a limited number of travel grants to encourage the participation of graduate students who wish to present their research at the March Meeting in DBP-sponsored sessions. We are trying to help as many student authors as DBP's limited budget allows. The amount of each award to each chosen student author is based partly on his/her need and partly on the traveling distance.

This year, DBP sponsored a record number of meeting sessions. At the same time, we received over 30 applications from student-authors, also a record number! We carefully selected twelve students and awarded, on an average, \$250 per applicant, for a total of \$3200.

We congratulate the recipients, listed below, for their excellent work!

-- Shirley Chan, DBP Secretary-Treasurer

Supratim Ray (*Weizmann Institute*)

Lawrence Lin (*University of California at Santa Barbara*)

Gerald Lim (*Simon Fraser University*)

Rui Zhang (*University of Minnesota*)

Ai Nihongi (*University of Wisconsin, Milwaukee*)

Nitin Rathore (*University of Wisconsin, Madison*)

Prem Chapagain (*Florida International University*)

Jose Parra (*Florida International University*)

Nitin Agrawal (*Texas A&M*)

Roger C. Lo (*Texas A&M*)

Faisal A. Shaikh (*Texas A&M*)

Arjun Sudarsan (*Texas A&M*)

Coming soon! - New Cross-Disciplinary Fellowship Program from the Human Frontier Science Program

Over the last few years, the HFSP has been increasingly emphasising the collaboration between scientists in different disciplines in its grant and postdoctoral fellowship programs. Thanks to the help of organisations such as the APS in publicising these programs, the involvement in the grant program of scientists working in disciplines outside the life sciences has increased seven-fold since 2001. More applications have also been received for postdoctoral fellowships from young scientists trained in the physical sciences, who are seeking training in the life sciences in laboratories abroad, but the change has not been as dramatic as in the grants. HFSP is especially committed to bringing new conceptual and methodological approaches from other disciplines into biology and young scientists will play an important role in this transformation. A special fellowship program for such scientists is therefore being introduced. The new Cross-Disciplinary

Fellowships will be introduced starting with the application deadline in September 2004. The first awards will be announced in March 2005.

The conditions for these fellowships will be the same as those of the current Long-term Fellowships. This three year postdoctoral package for training abroad is particularly attractive due to its flexibility and the chances it offers young scientists during their move to independence. Fellows can either remain in their host laboratories for the three years of the fellowship, or they can take the third year in a laboratory back in their home countries. The return home may be deferred for up to two years if the host is prepared to support the Fellow from other sources. Those who return home are eligible to apply for a Career Development Award to help them start up their own independent laboratories.

More details will be available on the HFSP web site at www.hfsp.org from the beginning of May.

PRE HIGHLIGHTS

Biological Physics Articles from Physical Review E

February 2004

Volume 69, Number 2, Articles
(02xxxx)

<http://scitation.aip.org/dbt/dbtjsp?KEY=PLEEE8&Volume=69&Issue=2>

ARTICLES

**Absolute interfacial distance
measurements by dual-wavelength
reflection interference contrast
microscopy**

[Jörg Schilling](#), [Kheya Sengupta](#), [Stefanie Goennenwein](#), [Andreas R. Bausch](#), and

[Erich Sackmann](#)

Published 12 February 2004 (9 pages)
021901

**Anomalous self-assembly of gelatin in
ethanol-water marginal solvent**

[H. B. Bohidar](#) and [B. Mohanty](#)

Published 19 February 2004 (9 pages)
021902

**Evolutionary model with genetics,
aging, and knowledge**

[Armando Ticona Bustillos](#) and [Paulo Murilo C. de Oliveira](#)

Published 20 February 2004 (8 pages)
021903

Simulation of the kinetics of a sphere attached to a fluctuating polymer: Implications for target search by DNA-binding proteins

[J. Chakrabarti](#) and [S. Roy](#)

Published 24 February 2004 (5 pages)
021904

Spiking neural network for recognizing spatiotemporal sequences of spikes

[Dezhe Z. Jin](#)

Published 26 February 2004 (13 pages)
021905

Outbreaks of Hantavirus induced by seasonality

[J. Buceta](#), [C. Escudero](#), [F. J. de la Rubia](#), and [Katja Lindenberg](#)

Published 26 February 2004 (8 pages)
021906

Model study of protein unfolding by interfaces

[S. D. Chakarova](#) and [A. E. Carlsson](#)

Published 26 February 2004 (9 pages)
021907

Extinction in population dynamics

[C. Escudero](#), [J. Buceta](#), [F. J. de la Rubia](#), and [Katja Lindenberg](#)

Published 26 February 2004 (9 pages)
021908

Phase diagram of aggregation of oppositely charged colloids in salty water

[R. Zhang](#) and [B. I. Shklovskii](#)

Published 26 February 2004 (10 pages)
021909

From a discrete to a continuous model of biological cell movement

[Stephen Turner](#), [Jonathan A. Sherratt](#), [Kevin J. Painter](#), and [Nicholas J. Savill](#)

Published 27 February 2004 (10 pages)
021910

Elastic interactions of active cells with soft materials

[I. B. Bischofs](#), [S. A. Safran](#), and [U. S. Schwarz](#)

Published 27 February 2004 (17 pages)
021911

Cooperative effects on the kinetics of ATP hydrolysis in collective molecular motors

[Yaogen Shu](#) and [Hualin Shi](#)

Published 27 February 2004 (5 pages)
021912

Eigen model as a quantum spin chain: Exact dynamics

[David Saakian](#) and [Chin-Kun Hu](#)

Published 27 February 2004 (5 pages)
021913

Stochastic resonance in a biological motor under complex fluctuations

[Cheng-Hung Chang](#) and [Tian Yow Tsong](#)

Published 27 February 2004 (4 pages)
021914

Constant-pH molecular dynamics study of protonation-structure relationship in a heptapeptide derived from ovomucoid third domain

[Maciej Długosz](#), [Jan M. Antosiewicz](#), and [Andrew D. Robertson](#)

Published 27 February 2004 (10 pages)
021915

Collapse of a semiflexible polymer in poor solvent

[Alberto Montesì](#), [Matteo Pasquali](#), and [F. C. MacKintosh](#)

Published 27 February 2004 (10 pages)
021916

BRIEF REPORTS

Interspike interval statistics of neurons driven by colored noise

[Benjamin Lindner](#)

Published 27 February 2004 (4 pages)
022901

March 2004

Volume 69, Number 3, Articles (03xxxx)

<http://scitation.aip.org/dbt/dbt.jsp?KEY=PLLEE8&Volume=69&Issue=3>

ARTICLES

Time-resolved contrast function and optical characterization of spatially varying absorptive inclusions at different depths in diffusing media

[S. De Nicola](#), [R. Esposito](#), [M. Lepore](#), and [P. L. Indovina](#)

Published 4 March 2004 (7 pages) 031901

Conformation of local denaturation in double-stranded DNA

[Wokyung Sung](#) and [Jae-Hyung Jeon](#)

Published 12 March 2004 (7 pages) 031902

Elastic deformation of a fluid membrane upon colloid binding

[Markus Deserno](#)

Published 12 March 2004 (14 pages) 031903

Condition for alternans and its control in a two-dimensional mapping model of paced cardiac dynamics

[Elena G. Tolkacheva](#), [Mónica M. Romeo](#), [Marie Guerryat](#), and [Daniel J. Gauthier](#)

Published 15 March 2004 (8 pages) 031904

Reentrant phase transitions of DNA-surfactant complexes

[Rema Krishnaswamy](#), [V. A. Raghunathan](#), and [A. K. Sood](#)

Published 17 March 2004 (4 pages) 031905

Relationship between the unbinding and main transition temperatures of phospholipid bilayers under pressure

[T. A. Harroun](#), [M.-P. Nieh](#), [M. J. Watson](#), [V. A. Raghunathan](#), [G. Pabst](#), [M. R. Morrow](#), and [J. Katsaras](#)

Published 19 March 2004 (8 pages) 031906

Cooperativity and contact order in protein folding

[Marek Cieplak](#)

Published 23 March 2004 (5 pages) 031907

Large phenotype jumps in biomolecular evolution

[F. Bardou](#) and [L. Jaeger](#)

Published 24 March 2004 (7 pages) 031908

Approximate solution to the speed of spreading viruses

[Vicente Ortega-Cejas](#), [Joaquim Fort](#), [Vicenc Méndez](#), and [Daniel Campos](#)

Published 24 March 2004 (4 pages) 031909

Recurrent biological neural networks: The weak and noisy limit

[Patrick D. Roberts](#)

Published 25 March 2004 (11 pages) 031910

Phase transition and selection in a four-species cyclic predator-prey model

[György Szabó](#) and [Gustavo Ariel Sznaider](#)

Published 31 March 2004 (5 pages) 031911

Chaos-induced modulation of reliability boosts output firing rate in downstream cortical areas

[P. H. E. Tiesinga](#)

Published 31 March 2004 (13 pages) 031912

Plankton lattices and the role of chaos in plankton patchiness

[R. M. Hillary](#) and [M. A. Bees](#)

Published 31 March 2004 (11 pages) 031913

Electromagnetic response of a dipole-coupled ellipsoidal bilayer

[T. Ambjörnsson](#), [S. P. Apell](#), and [G. Mukhopadhyay](#)

Published 31 March 2004 (8 pages) 031914

Atomic force microscopy contact, tapping, and jumping modes for imaging biological samples in liquids

[F. Moreno-Herrero](#), [J. Colchero](#), [J. Gómez-Herrero](#), and [A. M. Baró](#)

Published 31 March 2004 (9 pages) 031915

Stochastic heart-rate model can reveal pathologic cardiac dynamics

[Tom Kuusela](#)

Published 31 March 2004 (7 pages)
031916

Transmission of severe acute respiratory syndrome in dynamical small-world networks

[Naoki Masuda](#), [Norio Konno](#), and [Kazuyuki Aihara](#)

Published 31 March 2004 (6 pages)
031917

Numerical path integration technique for the calculation of transport properties of proteins

[Eun-Hee Kang](#), [Marc L. Mansfield](#), and [Jack F. Douglas](#)

Published 31 March 2004 (11 pages)
031918

Lattice Boltzmann simulation on particle suspensions in a two-dimensional symmetric stenotic artery

[Huabing Li](#), [Haiping Fang](#), [Zhifang Lin](#), [ShiXiong Xu](#), and [Shiyi Chen](#)

Published 31 March 2004 (9 pages)
031919

Self-similar processes and flicker noise from a fluctuating nanopore in a lipid membrane

[Malgorzata Kotulska](#), [Stanislawa Koronkiewicz](#), and [Slawomir Kalinowski](#)

Published 31 March 2004 (10 pages)
031920

BRIEF REPORTS

Structural stability study of protein monolayers in air

[P. P. Pompa](#), [A. Biasco](#), [R. Cingolani](#), [R. Rinaldi](#), [M. Ph. Verbeet](#), and [G. W. Canters](#)

Published 30 March 2004 (4 pages)
032901

Low-lying excited states of light-harvesting system II in purple bacteria

[Yang Zhao](#), [Man-Fai Ng](#), and [GuanHua Chen](#)

Published 31 March 2004 (4 pages)
032902

**NEW RESOURCE LETTER ON
“PHYSICAL PROBLEMS IN BIOLOGY”**

Eugenie Mielczarek is compiling a resource letter on “Physical Problems in Biology” for the American Journal of Physics. AJP Resource Letters provide a survey of popular level books; texts, elementary, intermediate and advanced; journals and recent review papers. She welcomes input from DBP’s general membership. The topic “Physical Problems in Biology” as presently titled by AJP is narrower than the general term Biological Physics but there is no need to agonize over whether your suggestions are perfect fits to the present title. In categories 4 and 5 she is seeking reviews and monographs published after 1993.

-- Eugenie V. Mielczarek Emeritus Professor of Physics

Please reply by June 1, 2004 either by e-mail mielczar@physics.gmu.edu, Phone 703-993-1282, or snail mail, to Professor Eugenie V. Mielczarek, Mail Stop 3F3, Physics Dept, George Mason University, Fairfax, VA 22030-4444

Categories

1. Popular Books (general public, 9th grade and above)
 2. Texts (all levels)
 3. Professional books and conference proceedings
 4. Journal Articles
 5. Chapter or article in a book
 6. Video Tapes---DVD’s
- Any comment(s) about your selection(s) would be very helpful. Thank you!

DBP ELECTION RESULTS

**The Biological
Physicist
extends a warm welcome to
the newly elected members of
the Executive Committee**

Vice-Chair

Marilyn Gunner

Secretary-Treasurer

Shirley Chan

At-Large Members

Lois Pollack

Stephen Quake

Instructions for submission of proposals for DBP focus session at the 2005 March meeting in LA

A. Session Title:

Please don't forget that we would like to **attract** a large audience to each session and that we compete with many parallel events.

B Organizer:

Name:

Affiliation:

Phone:

Email:

Postal Address:

C Description of focus session

This description is the basis upon which the program committee will select proposals. Describe what topics are targeted. Please describe the topics in non-technical terms (so that the committee members with a diverse background can understand the relevance). There are TWO invited speakers per session. Describe the role of each speaker and what she/he will present and how it fits into the topics of the session. It is important to keep in mind that we would like to see many contributed submissions for each focus-topic. Please stay within 1/2 page.

D For each invited speaker:

Name:

Affiliation:

Phone:

Email:

Postal Address

E. Session Chair

It is very important that a session chair is selected at the time of proposal submission. The session organizer can act as chair. The chair needs to be absolutely committed to attend the March meeting and chair the session. The session chair needs to be available for phone calls during the sorters meeting December 11-12.

Name:

Affiliation:

Phone:

Email:

Postal Address:

The DBP program committee (6 members of the executive committee) will select proposals for focus sessions

Submit by email to the program-chair by 07/01: Peter Jung, jung@helios.phy.ohiou.edu

Instructions for submission of proposals for DBP symposia at the 2005 March meeting in LA

A. Symposium Title:

Please don't forget that we would like to **attract** a large audience to each symposium and that we compete with many parallel events. If a title is too technical – as grand as the content of the symposium may be -, it is likely that we do not attract a large audience.

B Organizer:

Name:
Affiliation:
Phone:
Email:
Postal Address:

C Description of Symposium

This description is the basis upon which the program committee will select proposals. Please describe the symposium in non-technical terms (so that the committee members with a diverse background can understand the relevance). Write it like you write the proposal summary of an NSF proposal. You have to convince the committee that the topic is a) important b) relevant and c) interesting for more than a few specialists in the field. Describe the role of each speaker and what she/he will present and how it complements the other speakers. In other word, we would like to see an overall plan and coherence between the speakers. Like an NSF summary, please stay within 1 page.

D For each speaker:

Name:
Affiliation:
Phone:
Email:
Postal Address:

E. Session chair

It is very important that a session chair is selected at the time of proposal submission. The organizer This person needs to be absolutely committed to attend the March meeting and chair the session.

Name:
Affiliation:
Phone:
Email:
Postal Address:

The DBP program committee (6 members of the executive committee) will select proposals for invited sessions.

Submit by email to the program-chair by 07/01: Peter Jung, jung@helios.phy.ohiou.edu