THE BIOLOGICAL PHYSICIST

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

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In this Issue

This issue – the first of Volume 7 of THE BIOLOGICAL PHYSICIST – brings you the minutes of the DBP Business Meeting, an interview with J. Raul Grigera, and the announcement of the 2007 International Conference on Biological Physics. We also bring you special supplements to the regular features PRE and PRL Highlights. These supplements introduce you to the PRE and PRL staff, and provide some important statistics on recent publishing trends in these two major journals.

– SB

DBP BUSINESS MEETING MINUTES

Recorded by Shirley Chan

Colorado Convention Center, CO, March 6, 2007.

Catered refreshments are served before Business Meeting. 36 attendees sign in.

Meeting begins at 5:47 pm.

Marilyn Gunner, DBP Chair, presides, welcomes all attendees, and announces that a short talk will be given by Lance Haworth, Acting Director of the NSF's Division of Materials Research, after the regular Business Meeting adjourns. The Biophysical Society Meeting concurring in Baltimore is costing us some attendance at our Meeting here.

Gunner announces a great piece of news. With the successful fundraising efforts by John Hopfield, APS President, and Shirley Chan, DBP Secretary-Treasurer (S-T), plus a transfer from DBP funds during 2006, $100K has been raised, enabling the endowment of the Biological Physics Prize plus an increase of the award to $10K biennially. The prize has been renamed to honor Max Delbruck, one of the earliest pioneers in biological physics field.

Reports from Shirley Chan on DBP memberships and finances. (Copies of the agenda and reports are distributed at the meeting, and appear at the end of the Minutes.)

DBP membership has been growing steadily from 1300 in 2000 to 1850 in 2007, a 50% increase. The distributions: 32% are students, 6% are post-docs, and 62% regular-senior. 245 (16%) of the 1500 male members are Fellows, and only 17 (6%) of 285 female are Fellows. Efforts should be made to narrow this Fellow gender gap in the coming years.

Chan reports that the total income in 2006 is $45,037.49, including a special donation, $25K, from Agouron Foundation. This money has been designated to support speakers' expenses of the Biological Physics Opportunities Workshops in multiple years. In turn, the DBP Executive Committee voted to transfer $25K from the operating funds to the Prize fund. The lump sum could be considered as the contributions from all DBP members, at an average of $15/member. The other line items for expenses are at similar levels compared to 2005. The 2006 Workshop has a surplus of $983.53, to be applied to 2007 Workshop expenses. The total year-end assets of operating funds for 2006 are $56,795.15, compared to $48,084.52 for 2005.

For 2007 March Meeting, the support for invited speakers has been budgeted at $5K. Some speakers attended only one day. Thus, ~$470 has been saved from their reduced registration fees. Chan requested Chair-Elect Dean Astumian's permission to apply the saving to the Student Travel Grants budget (amount derived from 2006 interest earnings). 23 students applied for the grants. Among them, 5 were disqualified; 13 of the 18 are male, and 5 are female. 15 are domestic applicants and 3 are foreign. The awards for the students range from $150 to $400, depending the airfare from their college locations to Denver. The total amount awarded to students is $3600.

Election Results:
Gunner thanks Peter Jung, the Past Chair, for serving as the Nominating Committee Chair. She thanks Steve Quake and Lois Pollack for serving 3 years as Members-at-Large (MaLs).

Quake is elected as the Vice Chair. John Milton and Jin Wang are elected as the new MaLs. Congratulations to all. Quake will chair this year's Fellowship Committee and the next Workshop in 2008. All MaLs will serve in various committees.

Fellowship nominations:
From now on, the deadline for nominations of Fellowship candidates will be May 1. With 1850 members, DBP will be allowed to sponsor up to 9 candidates for the elections.

James Glazier urges members to increase the candidate pool. He emphasizes that an increase of DBP membership will improve the quality of Fellowship

candidates, and suggests that members be proactive by asking your APS colleagues to nominate yourselves. Gunner asks DBM members to identify colleagues at their own departments so that they can be recognized.

One-day Workshop, Opportunities in Biological Physics, March 4, before March Meeting:
Gunner thanks Glazier for organizing the workshop. Topics include tissue engineering and industrial sciences. Among ~120 participants, most are students. Agouron Foundation provides a multi-year funding to support the speakers. A small donation comes from Fluidigm to defray some expenses. Quake will chair the next Workshop.

Bob Eisenberg has organized a DBP contributory symposium at BPS Meeting in Baltimore. The BPS contributes a reciprocal session at our Meeting. It will be on Thursday morning with 5 speakers.

Newsletter:
Sonya Bahar, the Newsletter Editor, says that the bimonthly newsletter publishes DBP business and meeting announcements, accepts ads for job openings, features articles on, and interviews with, people in the field as well as profiling labs and departments, and publishes the highlights from PRE and PRL. She urges DB members to support the newsletter by reading it and submitting announcements, job ads, and ideas for feature articles.

Gunner asks members to propose new topics for symposia and focus sessions for 2008. DBP receives more revenue distribution from APS by having more contributory sessions and talks, and by having more attendance.

The DBP Graduate/Education Database, a new project on DBP website, is reported on by Hagen. The purpose of the database is to establish a searchable (by key words or names), broadly accessible database of biological physics labs, for use by undergrad/graduate students, postdocs and PIs.

The idea was initiated by Chan in Jan 2005, with Andrea Markelz to design the project's software, plus some technical assistance from APS staff, Sara Conners and Delong Yang. Steve Hagen, elected in March 2005, also participated in design and testing before taking over as the database managing editor. He reviews and approves the entries before posting them on the website: http://units.aps.org/units/inst/search/index.cfm?UNIT=DBP. This site comes up as a top hit in a Google search for "biological physics directory". Launched in Sept, 2006, the database now has 77 listings as of 3/1/07, with 90% of the listings added during in the first 3 months.

Current plans for the database: (1) to advertise again in the DBP newsletter; (2) to link to prominently on DBP webpage; (3) suggestions accepted. The APS is interested in expanding this website if proven successful. A future editor to manage the database will be needed, after Hagen's ExCom term expires.

Gunner introduces 9 newly-elected Fellows with citations and presents to each his/her APS Fellowship certificate & pin. New Fellows are: Shirley Chan, Michael Deem, Glenn Edwards, James Glazier, John Marko (absent), John Milton, Brad Roth (absent), Steven Schwartz, Gustavo Stolovitzy (absent). (The S-T will send the absentees their certificates and pins within a month.)

Gunner points out that Hagen has been appointed during the Executive Committee Meeting to head the planning how to recruit more members.

Open invitation from the floor for any comments:
(1) Glazier suggests continuing the fundraising toward the prize fund, in the hope of making it an annual award.
(2) Hagen proposes to create a graduate student thesis award to recognize student research achievements. The Executive Committee has authorized the exploration how other divisions do it before setting up any DBP guidelines.
(3) Robert Austin wants bylaws updated. Chan replies that the process has been started with a committee of 3. Any Bylaw changes require multiple levels of approvals. She hopes to complete the process by late 2007 to be voted by DBP membership for final approval.
(4) J. Raul Grigera, chairman of the ICBP conference in 2007, Aug 27-31, in Montevideo, Uruguay, asks DBP members to participate. The conference is sponsored by IUPAP, IUPAB, and FEIASOFI. The deadline for abstract submissions is June 1. Bahar offers to post it in newsletter. [Editor's Note: See pages 6-9 and 30-31 of this issue.]

Gunner introduces the next DBP Chair, Dean Astumian.

Astumian pledges to serve for the DBP, and to work and share the love of science with DBP members and students. To help funding of research, he urges the attending members to sign the Congressional letters prepared by the APS and send to own States' Congressional Members for funding impact.

6:40 pm. Meeting adjourns.

APS Division of Biological Physics
2006 Financial Report

OPERATING FUNDS

	2005	2006	2006 Totaling
INCOME			
Member Count on 01/0	**1682**	**1783**	
Dues (@ $5)	$8,410.00	$8,915.00	
March Meeting Share	$7,403.00	$7,892.00	
Investment Earnings	$3,399.08	$3,230.49	
Agouron Foundation	$0.00	$25,000.00	
Total Income	**$19,212.08**	**$45,037.49**	**$45,037.49**
EXPENSES			
Dinner: Excom Mtg	$1,395.12	$1,268.19	
Rental: Projector/Videc	$363.86	$352.00	
Lunch: Students	$862.67	$0.00	
Reception: Business Mt	$0.00	$488.54	
Reg. Waiver: Speakers	$2,590.00	$2,355.00	
Travel: Speakers	$4,400.00	$1,352.96	
Travel: Students	$3,700.00	$3,400.00	
Travel: Sorters & other	$2,297.33	$1,692.78	
Lobbying Fee to BPS	$5,000.00	$1,000.00	
Printing Fees	$592.00	$328.28	
Misc (postage, bank,...	$610.43	$71.64	
Transfer to Prize Fund		$25,000.00	
Total Expenses	**$21,811.41**	**$37,309.39**	**-$37,309.39**
Workshop Balance	**N/A**		**$983.53**
Previous Year Balan	**$50,683.85**		**$48,084.52**
YR-END NET ASSETS	**$48,084.52**		**$56,796.15**

WORKSHOP FUNDS

	2006	Totaling
INCOME		
Registration fees	$7,800.00	
NSF Grant	$3,350.00	
ICAM Grants	$3,000.00	
IOP Contribution	$1,500.00	
Total Income	**$15,650.00**	**$15,650.00**
EXPENSES		
Refreshments	$5,130.00	
Rental: Projector/Vide	$462.50	
Travel: Speakers	$7,439.80	
Travel: Organizers	$1,434.07	
Credit Card Charge	$148.50	
Poster & Printing	$51.60	
Total Expenses	**$14,666.47**	**-$14,666.47**
NET BALANCE		**$983.53**

Max Delbruck Prize in Biological Physics

	2005	2006
ASSETS		
Balance on 01/01	$5,251.98	$5,631.66
Contributions:		
Anonymous	$0.00	$50,612.00
All DBP Members	$0.00	$25,000.00
lopfield's former Studer	$0.00	$23,000.00
Investment Income	$379.68	$1,037.31
TOTAL ASSETS	**$5,631.66**	**$105,280.97**
EXPENSES		
Prize for Recipient	**$0.00**	**-$5,000.00**
YR-END NET ASSETS	**$5,631.66**	**$100,280.97**

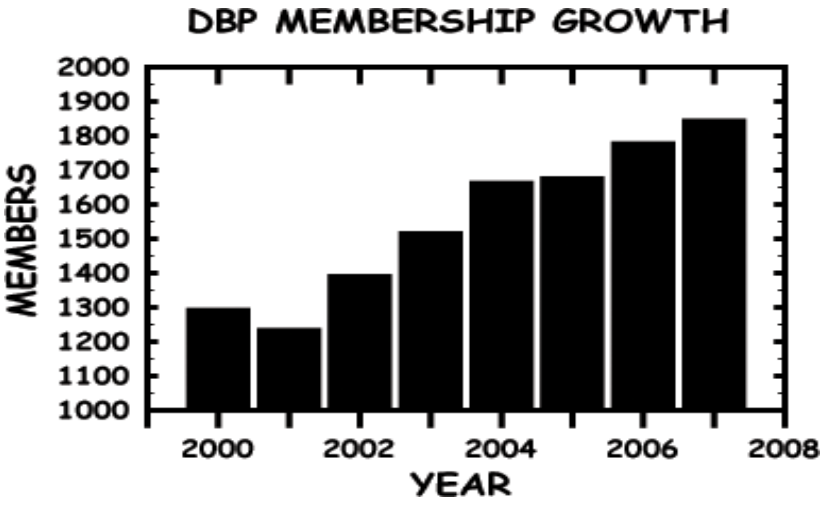
Profile of 2007 DBP Membership

Category	Members	Percentage
Senior	71	4%
Life	116	6%
Regular	965	52%
Junior	103	6%
Student	595	32%
Total	1850	100%

Gender	All Categories	Percentage
Male	1498	81%
Female	283	15%
Not Stated*	69	4%
Total	1850	100%

Fellow	Fellows	Percentage of Total Members	Percentage of Each Gender
Male	245	13%	16%
Female	17	1%	6%
Total	262	14%	N/A

*Please log in to the APS online directory in order to update your listing to include your gender. While this information is not required, it is really helpful to have as much information as possible about the gender balance in the division.



A Conversation with J. Raul Grigera

S. Bahar

APS Fellow J. Raul Grigera is Professor at the University of La Plata, Argentina. Among his many professional roles, Grigera is a Member of the Research Career of the CONICET (National Research Council of Argentina) and Director of the Institute of Physics of Liquids and Biological Systems (IFLYSIB) at La Plata. He is organizing the 2007 International Conference of Biological Physics (ICBP), to be held in Montevideo, Uruguay, on August 27-31. He spoke with THE BIOLOGICAL PHYSICIST about the process of organizing the conference, about his background in interdisciplinary science, his research, and his thoughts on science in developing countries. [More details about the ICBP conference appear on pages 30 and 31 of this issue.]

THE BIOLOGICAL PHYSICIST: **How did you get involved in interdisciplinary / biological physics research?**

J. Raul Grigera: By the time I was about to complete my undergraduate studies, I got interested in Biological Physics, a field that 40 years ago was not common within physics students, at least in Argentina. At that time, what people called "Biological Physics" was something taught at Medical Schools in which instead of studying the collision between two cars, they studied the collisions of two ambulances. It was obvious that my lack of knowledge of Chemistry and Biology was the biggest barrier to understand the systems in which I wanted to work. I talked myself into being admitted in a Biological Chemistry laboratory where, while studying the new subject, I could get the gist of lab work connected with life science. After working for a short time on protein biosynthesis I moved to a laboratory in which I did my first paper on water flux through frog skin. After this I felt it was time to move from biologically-oriented labs to something closer to physics. A (rather slender) Argentinean fellowship gave me the opportunity to work in Groningen, The Netherlands, where under the guidance of Prof Herman Berendsen I did most of my PhD Thesis on collagen hydration using NMR, dielectric relaxation and statistical mechanics. Back home, I got my PhD and participated in the foundation of the Argentine Biophysical Society, where, out of 60 members, only 3 were physicists. Shortly after arriving, I got a position as an Assistant Professor of Biophysics in the Department of Biology and set up my lab (there was no other Professor working on the topic).

J. Raul Grigera at his desk.

Describe your own research area. What is your lab working on?

From those early times we have always been working on water in biological systems, in a truly multidisciplinary way, both in the systems we study (proteins, membranes, solutions) and the approaches we use (experiments, theory, and simulations). Water itself is also a subject of study. I have participated in the design of the

A researcher measuring very slow dielectric relaxation glucose glasses with equipment designed and constructed in Grigera's lab.

SPC/E water model and applied it to different systems. At present the most active subjects in my lab are the study of proteins under pressure (experimentally and by simulations), the study of extremely large dielectric relaxation times in glasses, water flux through model membranes, and hydrophobic interactions, among other problems. From the applied point of view, we have been able to produce a collagen membrane of particular properties with potential medical uses.

Tell us about the history of the ICBP conferences.

The ICBP conferences (International Conferences of Biological Physics) are the official conferences of the Commission for Biological Physics of the International Union of Pure and Applied Physics (IUPAP), created in 1990. The first ICBP was held in Szeged, Hungary, in 1993, followed by the 2nd in Munich, Germany, in 1995. From then on, they were organized every three years: the 3rd in Santa Fe, USA 1998, the 4th in Kyoto, Japan in 2001, the 5th in Gothenburg, Sweden, and now, the 6th is scheduled in Montevideo, Uruguay for August 27-31 of this year. [Editor's note: there is still time to register to attend this meeting: see pages 30-31 of this issue for the conference announcement.] The scheme is planned so that this Conference and the International Biophysics Congress (IUPAB) would not happen in the same year, so as to make life easier for those interested in both meetings. 2007 will be the first time that the ICBP will be held in the Southern Hemisphere. This will certainly give a boost to Biological Physics in this region where, by the way, it is already very active.

How does the ICBP meeting compare to other major conferences? What is unique about it?

The ICBP has indeed a particular profile. Although the borderline between Biophysics and Biological Physics is completely diffuse (proof of that is that most of us are members of societies of both names), there is a particular flavour of the ICBP meetings that is difficult to describe. Probably it is the particular spirit in which we approach the problems, more than the subject itself. The most amazing aspect is that it blends people from both the physics and the biology sides, working hand in hand with the same spirit. A difference with many major meetings is that it not only considers the more fashionable subjects, but also some classical ones, and some which are very new. This gives a feeling of the front line, but also cements and refreshes the knowledge of the fundamental works that may give birth to novel discoveries.

What has the process of organizing a major international conference been like? (Exhausting?)

Clearly the organization of a major international conference is exhausting. Five years ago I participated in the organisation of the 14th International Biophysics Congress in Buenos Aires (2002) and it seemed to me at that time that one had been enough. However, it is said that the man is the only animal that trips twice with the same stone, and when Uli Nienhaus, the Chairman of the Commission of Biological Physics of IUPAP, asked me to organize this conference, I did not hesitate, and accepted the task. The thing is that while it is true that the process of organizing a big meeting is exhausting, it is at the same time truly exciting and rewarding. One gets to know new people from all over the world, stimulates one's own imagination to obtain resources, and, more importantly, allows one to work in an activity that will spread scientific knowledge and will

potentially help to the capacity building of the biological physics in different regions of the world.

Do you feel that biological physics research has changed significantly over the past few years? Do you think it is changing for the better?

If we consider the number of biologists and chemists involved in problems related with biological physics in the past, we will see that they largely outnumbered the physicists. Biological

An interdisciplinary discussion group in the IFLYSIB Institute.

physics was considered by most physicists to be in the backyard. In the last few years, the tables have turned, and it has become a very fashionable topic in physics. Molecular biology provides lots of preparative techniques that increase the possibilities of a deeper physical analysis. New techniques and fresh approaches open previously unexpected possibilities. These changes have had a positive influence and I am very optimistic with the new trend. However, we have to keep a cool head and preserve some traditional techniques that may be less exciting but give strong support to the development and understanding of new ideas.

How can a scientist do relevant science without the resources available in developed countries?

The question addresses a critical point. Many people think it pointless to try to do science without the many different resources available in developed countries. I consider good science to be an essential requisite for development, but to do it in a poor country it is necessary to use a completely different strategy than in a wealthy environment. The key is to fit the problem into the available resources and base the project more on the ideas than on the resources. This approach sometimes leads to a point in which the project faces the situation in which to continue to be productive will require more resources than those available. That is the time to release all the results hoping that someone else, with better resources, would carry on with the problem. One may not get the full credit of the final results but surely one would have made a contribution to science.

Are you involved in any activities to promote and strengthen biological physics in developing countries?

Since 1996 I have been working as a Convenor of the Task Force of Education and Capacity Building of Biophysics of IUPAB. This is an enormous but really rewarding work. One of the main problems faced in developing countries is *brain drain*, so we have to do the best we can to retain good scientists in their region. Different strategies can be used, but we place our bets on a Postgraduate Programme in Latin America. The Programme is based on a network of Universities and Research Centres sharing their expertise in different aspects of the field. In a developed country it is easy to find many specialities under the same roof, making a good postgraduate programme possible. In our scheme, we substitute this by combining spatially scattered facilities into a single programme, thus enabling the possibility of well qualified PhDs. We plan to apply the same scheme in other regions.

[Editor's note: turn to pages 30-31 for more information about the ICBP Conference.]

PRL HIGHLIGHTS

Soft Matter, Biological, &
Inter-disciplinary Physics Articles from

Physical Review Letters

2 February 2007

Vol 98, Number 5, Articles (05xxxx)
Articles published 27 Jan - 2 Feb 2007
http://scitation.aip.org/dbt/dbt.jsp?KEY=PRLTAO&Volume=98&Issue=5

LETTERS

Coexistence of Two Colloidal Crystals at the Nematic-Liquid-Crystal–Air Interface
A. B. Nych, U. M. Ognysta, V. M. Pergamenshchik, B. I. Lev, V. G. Nazarenko, I. Muševič, M. Škarabot, and O. D. Lavrentovich
Published 1 February 2007
057801

Structure of Liquid SiO_2: A Measurement by High-Energy X-Ray Diffraction
Q. Mei, C. J. Benmore, and J. K. R. Weber
Published 2 February 2007
057802

Jamming Transition in Granular Systems
T. S. Majmudar, M. Sperl, S. Luding, and R. P. Behringer
Published 29 January 2007
058001

Phase Diagrams of Quasispecies Theory with Recombination and Horizontal Gene Transfer
J.-M. Park and M. W. Deem
Published 29 January 2007
058101

Fractal Dimension and Localization of DNA Knots
Erika Ercolini, Francesco Valle, Jozef Adamcik, Guillaume Witz, Ralf Metzler, Paolo De Los Rios, Joaquim Roca, and Giovanni Dietler
Published 29 January 2007
058102

Role of Tension and Twist in Single-Molecule DNA Condensation
K. Besteman, S. Hage, N. H. Dekker, and S. G. Lemay
Published 30 January 2007
058103

Structure of Symmetric and Asymmetric "Ripple" Phases in Lipid Bilayers
Olaf Lenz and Friederike Schmid
Published 30 January 2007
058104

Structural Polymorphism of the Actin-Espin System: A Prototypical System of Filaments and Linkers in Stereocilia
Kirstin R. Purdy, James R. Bartles, and Gerard C. L. Wong
Published 1 February 2007
058105

Dense Colloidal Suspensions under Time-Dependent Shear
J. M. Brader, Th. Voigtmann, M. E. Cates, and M. Fuchs
Published 31 January 2007
058301

Control of Giant Breathing Motion in C60 with Temporally Shaped Laser Pulses
T. Laarmann, I. Shchatsinin, A. Stalmashonak, M. Boyle, N. Zhavoronkov, J. Handt, R. Schmidt, C. P. Schulz, and I. V. Hertel
Published 1 February 2007
058302

Diffusive Liquid Propagation in Porous and Elastic Materials: The Case of Foams under Microgravity Conditions

A. Saint-Jalmes, S. Marze, H. Ritacco, D. Langevin, S. Bail, J. Dubail, L. Guingot, G. Roux, P. Sung, and L. Tosini
Published 1 February 2007
058303

Forces of Interaction between DNA-Grafted Colloids: An Optical Tweezer Measurement
K. Kegler, M. Salomo, and F. Kremer
Published 2 February 2007
058304

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Vol 98, Number 6, Articles (06xxxx)
Articles published 3 Feb - 9 Feb 2007
http://scitation.aip.org/dbt/dbt.jsp?KEY=PRLTAO&Volume=98&Issue=6

LETTERS

Hydrodynamic Surface Interactions Enable Escherichia Coli to Seek Efficient Routes to Swim Upstream
Jane Hill, Ozge Kalkanci, Jonathan L. McMurry, and Hur Koser
Published 6 February 2007
068101

Measurement of the Restoring Forces Acting on Two Optically Bound Particles from Normal Mode Correlations
N. K. Metzger, R. F. Marchington, M. Mazilu, R. L. Smith, K. Dholakia, and E. M. Wright
Published 7 February 2007
068102

Mechanochemical Kinetics of Transcription Elongation
Lu Bai, Robert M. Fulbright, and Michelle D. Wang
Published 8 February 2007
068103

Scaling in Ecosystems and the Linkage of Macroecological Laws
Jayanth R. Banavar, John Damuth, Amos Maritan, and Andrea Rinaldo
Published 9 February 2007
068104

Optimal Stroke Patterns for Purcell's Three-Link Swimmer
Daniel Tam and A. E. Hosoi
Published 9 February 2007
068105

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Vol 98, Number 7, Articles (07xxxx)
Articles published 10 Feb - 16 Feb 2007
http://scitation.aip.org/dbt/dbt.jsp?KEY=PRLTAO&Volume=98&Issue=7

LETTERS

Observation of Fractional Stokes-Einstein Behavior in the Simplest Hydrogen-Bonded Liquid
F. Fernandez-Alonso, F. J. Bermejo, S. E. McLain, J. F. C. Turner, J. J. Molaison, and K. W. Herwig
Published 14 February 2007
077801

Probabilistic Sequence Alignments: Realistic Models with Efficient Algorithms
Edouard Yeramian and Edouard Debonneuil
Published 12 February 2007
078101

Control of Frictional Coupling of Transmembrane Cell Receptors in Model Cell Membranes with Linear Polymer Spacers
Oliver Purrucker, Anton Förtig, Rainer Jordan, Erich Sackmann, and Motomu Tanaka
Published 12 February 2007
078102

Noise Squeezing in a Nanomechanical Duffing Resonator
R. Almog, S. Zaitsev, O. Shtempluck, and E. Buks
Published 16 February 2007
078103

Red Blood Cells and Other Nonspherical Capsules in Shear Flow: Oscillatory Dynamics and the Tank-Treading-to-Tumbling Transition
J. M. Skotheim and T. W. Secomb
Published 13 February 2007
078301

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Vol 98, Number 8, Articles (08xxxx)
Articles published 17 Feb - 23 Feb 2007
http://scitation.aip.org/dbt/dbt.jsp?KEY=PRLTAO&Volume=98&Issue=8

LETTERS

Topological Changes in Bipolar Nematic Droplets under Flow
A. Fernández-Nieves, D. R. Link, M. Márquez, and D. A. Weitz
Published 21 February 2007
087801

Dynamics of an Anchored Polymer Molecule under an Oscillating Force
A. K. Chattopadhyay and D. Marenduzzo
Published 20 February 2007
088101

DNA Migration and Separation on Surfaces with a Microscale Dielectrophoretic Trap Array
Eric Petersen, Bingquan Li, Xiaohua Fang, Haobin Luo, Vladimir Samuilov, Dilip Gersappe, Jonathan Sokolov, Benjamin Chu, and Miriam Rafailovich
Published 20 February 2007
088102

Viscoelasticity of Isotropically Cross-Linked Actin Networks
R. Tharmann, M. M. A. E. Claessens, and A. R. Bausch
Published 21 February 2007
088103

Rheology of a Dilute Suspension of Vesicles
Gerrit Danker and Chaouqi Misbah
Published 22 February 2007
088104

Static and Dynamic Heterogeneities in a Model for Irreversible Gelation
T. Abete, A. de Candia, E. Del Gado, A. Fierro, and A. Coniglio
Published 22 February 2007
088301

Swollen-to-Globular Transition of a Self-Avoiding Polymer Confined in a Soft Tube
Jeff Z. Y. Chen
Published 22 February 2007
088302

Finger Rafting: A Generic Instability of Floating Elastic Sheets
Dominic Vella and J. S. Wettlaufer
Published 23 February 2007
088303
See Also: Phys. Rev. Focus

Bell's Expression and the Generalized Garg Form for Forced Dissociation of a Biomolecular Complex
Han-Jou Lin, Hsuan-Yi Chen, Yu-Jane Sheng, and Heng-Kwong Tsao
Published 23 February 2007
088304

Structure of Optimal Transport Networks Subject to a Global Constraint
Marc Durand
Published 21 February 2007
088701

Structure, Scaling, and Phase Transition in the Optimal Transport Network
Steffen Bohn and Marcelo O. Magnasco
Published 21 February 2007
088702

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Articles published 24 Feb - 2 Mar 2007
http://scitation.aip.org/dbt/dbt.jsp?KEY=PRLTAO&Volume=98&Issue=9

LETTERS

Thermodielectric Bistability in Dual Frequency Nematic Liquid Crystal
Y. Yin, S. V. Shiyanovskii, and O. D. Lavrentovich
Published 26 February 2007
097801

Randomly Forced DNA
Rajeev Kapri and Somendra M. Bhattacharjee
Published 26 February 2007
098101

Neutral Evolution in a Biological Population as Diffusion in Phenotype

Space: Reproduction with Local Mutation but without Selection
Daniel John Lawson and Henrik Jeldtoft Jensen
Published 26 February 2007
098102

Temporal and Dimensional Effects in Evolutionary Graph Theory
C. J. Paley, S. N. Taraskin, and S. R. Elliott
Published 27 February 2007
098103

Amplitude-Dependent Frequency, Desynchronization, and Stabilization in Noisy Metapopulation Dynamics
Refael Abta, Marcelo Schiffer, and Nadav M. Shnerb
Published 27 February 2007
098104
See Also: Phys. Rev. Focus

How Xenopus Laevis Replicates DNA Reliably even though Its Origins of Replication are Located and Initiated Stochastically
John Bechhoefer and Brandon Marshall
Published 27 February 2007
098105

Nonequilibrium Transport of Rigid Macromolecules in Periodically Constricted Geometries
Nabil Laachi, Carmelo Declet, Christina Matson, and Kevin D. Dorfman
Published 1 March 2007
098106

Hysteresis and Bistability in a Realistic Cell Model for Calcium Oscillations and Action Potential Firing
J. M. A. M. Kusters, J. M. Cortes, W. P. M. van Meerwijk, D. L. Ypey, A. P. R. Theuvenet, and C. C. A. M. Gielen
Published 1 March 2007
098107

Transverse Migration of a Confined Polymer Driven by an External Force
O. Berk Usta, Jason E. Butler, and Anthony J. C. Ladd
Published 26 February 2007
098301

Ultrafast Vibrational Energy Transfer between Surface and Bulk Water at the Air-Water Interface
Marc Smits, Avishek Ghosh, Martin Sterrer, Michiel Müller, and Mischa Bonn
Published 1 March 2007
098302

Dynamical Scaling in Branching Models for Seismicity
Eugenio Lippiello, Cataldo Godano, and Lucilla de Arcangelis
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098501

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Network Mechanism for Burst Generation
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Symmetry-Breaking Model for X-Chromosome Inactivation
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Hard X-Ray Phase Tomography with Low-Brilliance Sources
F. Pfeiffer, C. Kottler, O. Bunk, and C. David

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Migration and Proliferation Dichotomy in Tumor-Cell Invasion
Sergei Fedotov and Alexander Iomin
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118101

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Translations and Rotations Are Correlated in Granular Gases
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Systematic Field Theory of the RNA Glass Transition
Francois David and Kay Jörg Wiese
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Conformational Temperature Characterizing the Folding of a Protein
Naoko Nakagawa
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128302

Confined Space and Effective Interactions of Multiple Self-Avoiding Chains
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Counterion-Hopping along the Backbone of Single-Stranded DNA in Nanometer Pores: A Mechanism for Current Conduction
S. T. Cui
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138101

Proton Momentum Distribution in a Protein Hydration Shell
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Stochastic Qualifiers of Epileptic Brain Dynamics
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Modeling the Control of Fixational Eye Movements with Neurophysiological Delays
Konstantin Mergenthaler and Ralf Engbert
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Growth-Induced Instability in Metabolic Networks
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Thermophoresis in Colloidal Suspensions Driven by Marangoni Forces
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Biological Physics Articles from

Physical Review E

February 2007

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DNA molecules on periodically microstructured lipid membranes: Localization and coil stretching
Marion B. Hochrein, Judith A. Leierseder, Leonardo Golubovic, and Joachim O. Rädler
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RAPID COMMUNICATIONS

Screwlike order, macroscopic chirality, and elastic distortions in high-density DNA mesophases
F. Manna, V. Lorman, R. Podgornik, and B. Žekš
Published 16 March 2007 (4 pages)
030901(R)

Effects of temperature on the mechanical properties of single stranded DNA
C. Danilowicz, C. H. Lee, V. W. Coljee, and M. Prentiss
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Nonlinear finite-element analysis of nanoindentation of viral capsids
Melissa M. Gibbons and William S. Klug
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031901

Modeling fractal-like drug elimination kinetics using an interacting random-walk model

Rebeccah E. Marsh and Terence A. Riauka
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Wrapping conformations of a polymer on a curved surface
Cheng-Hsiao Lin, Yan-Chr Tsai, and Chin-Kun Hu
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Necklace-cloverleaf transition in associating RNA-like diblock copolymers
M. V. Tamm and S. K. Nechaev
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Tension dynamics in semiflexible polymers. I. Coarse-grained equations of motion
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Lateralization as a symmetry breaking process in birdsong
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Model of hyphal tip growth involving microtubule-based transport
K. E. P. Sugden, M. R. Evans, W. C. K. Poon, and N. D. Read
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Alexander Yu. Morozov, Ekaterina Pronina, Anatoly B. Kolomeisky, and Maxim N. Artyomov
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Dynamic stability in random and scale-free B-lymphocyte networks
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Spike patterning of a stochastic phase model neuron given periodic inhibition
William H. Nesse, Gregory A. Clark, and Paul C. Bressloff
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Extended method of moments for deterministic analysis of stochastic multistable neurodynamical systems
Gustavo Deco and Daniel Martí
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Folding behavior of ribosomal protein S6 studied by modified Gō-like model
L. Wu, J. Zhang, J. Wang, W. F. Li, and W. Wang
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031914

Dissociative electron attachment to hydrated single DNA strands
Sylwia Ptasińska and Léon Sanche
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Inherent multistability in arrays of autoinducer coupled genetic oscillators
A. Koseska, E. Volkov, A. Zaikin, and J. Kurths
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031916

Stochastic suppression of gene expression oscillators under intercell coupling

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Biological Physics

New Program in the Physics Division

Target Date: July 31, 2007

Apply to: PD 07-7246

Funds projects in which the lessons learned from studying biological problems foster new concepts and ideas that expand the intellectual basis of physics

Funds both experiment and theory

For more details go to: http://www.nsf.gov/biophys

Program Director:
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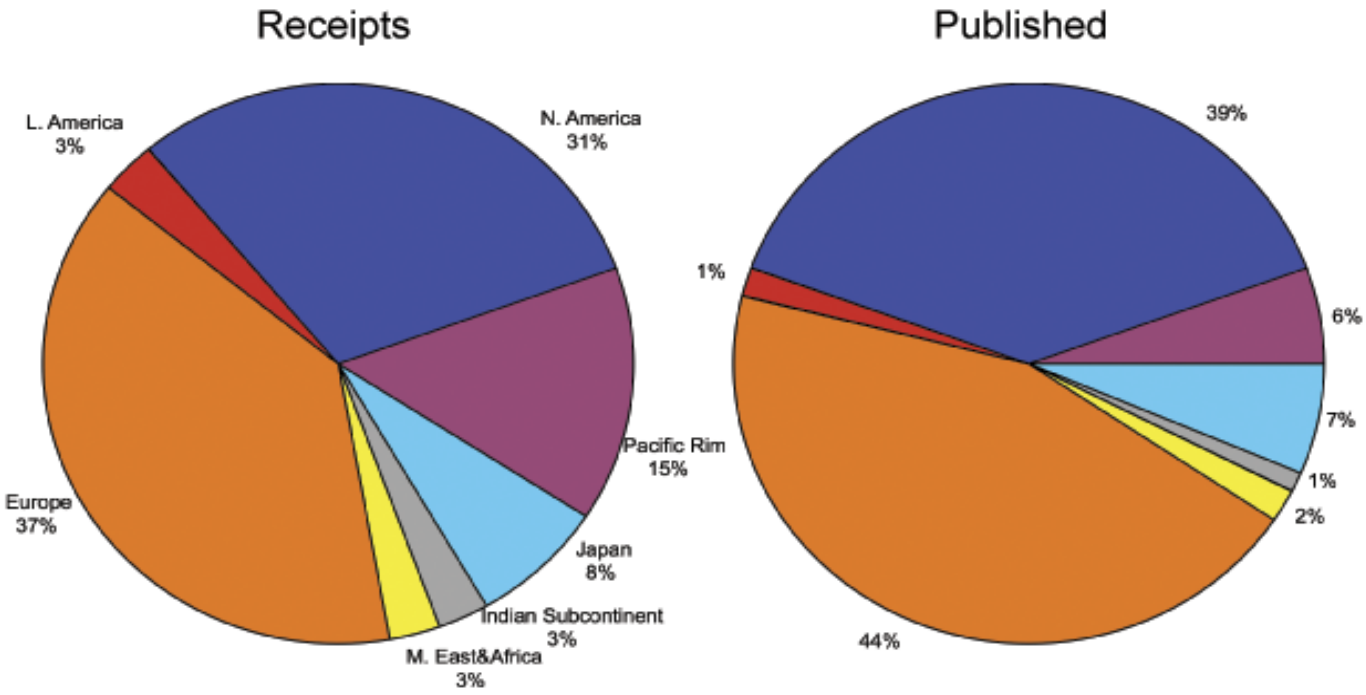
PRL SUPPLEMENT

Physical Review Letters
Geographic Origin of Manuscript
January 1 - December 31, 2006



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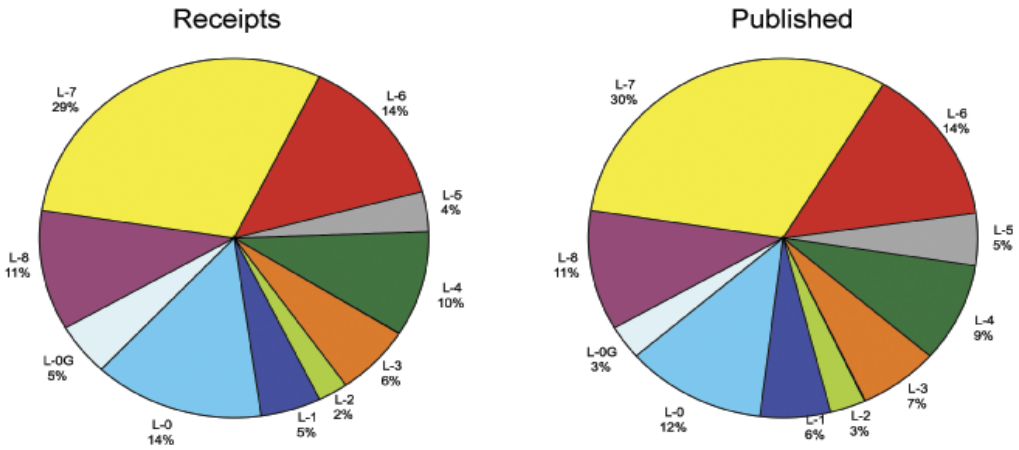

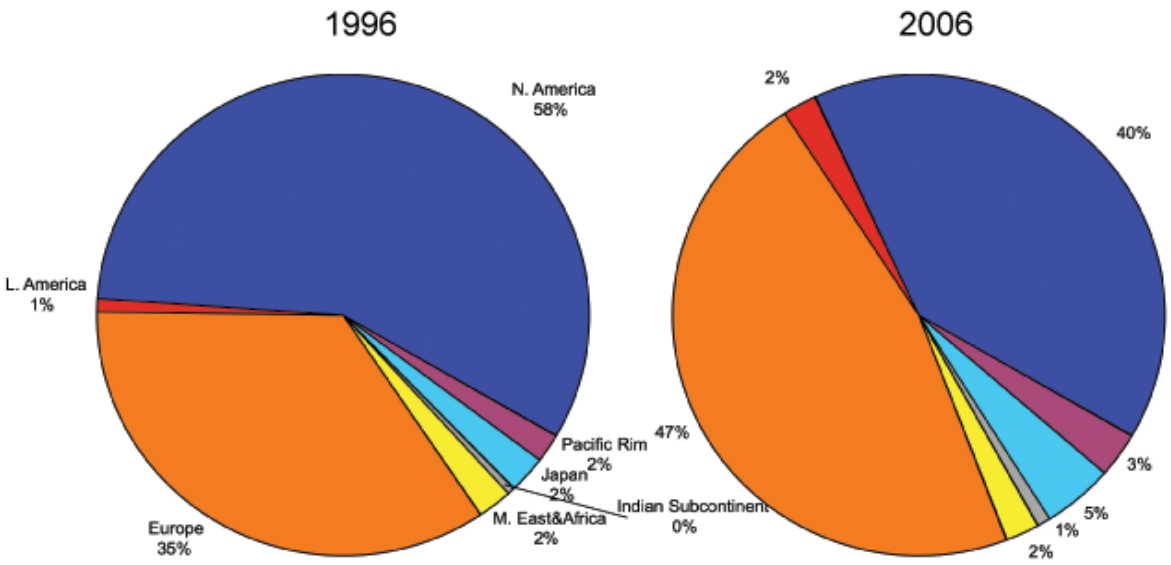

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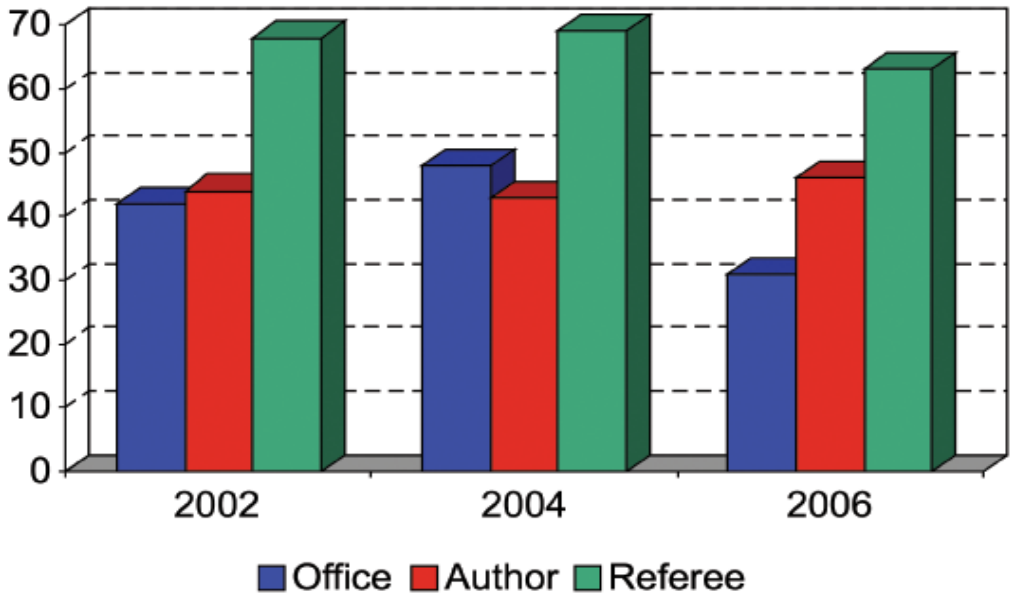

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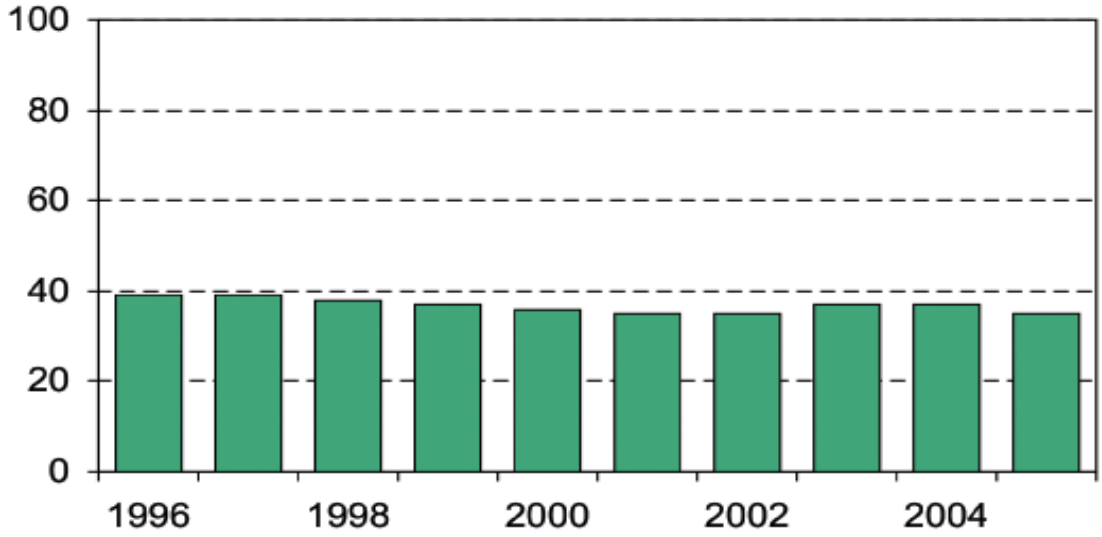

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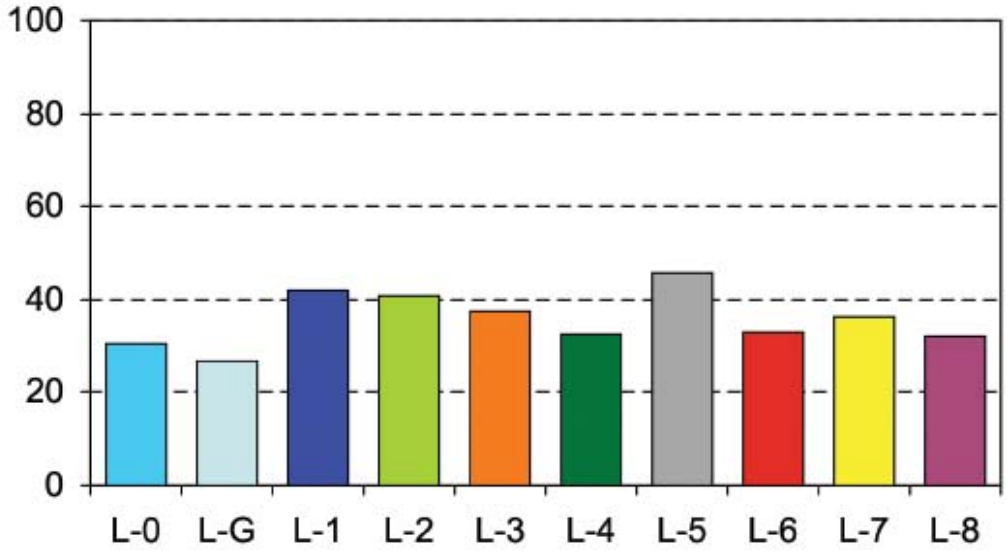

L0 -General Physics

LG-Gravitation and Astrophysics

L1-Elementary Particles and Fields

L2-Nuclear Physics

L3-Atomic, Molecular, and Optical Physics

L4-Nonlinear Dynamics, Fluid Dynamics, Classical Optics

L5-Plasma and Beam Physics

L6-Condensed Matter: Structure

L7-Condensed Matter: Electronic Properties

L8-Soft Matter, Biological, and Interdisciplinary Physics

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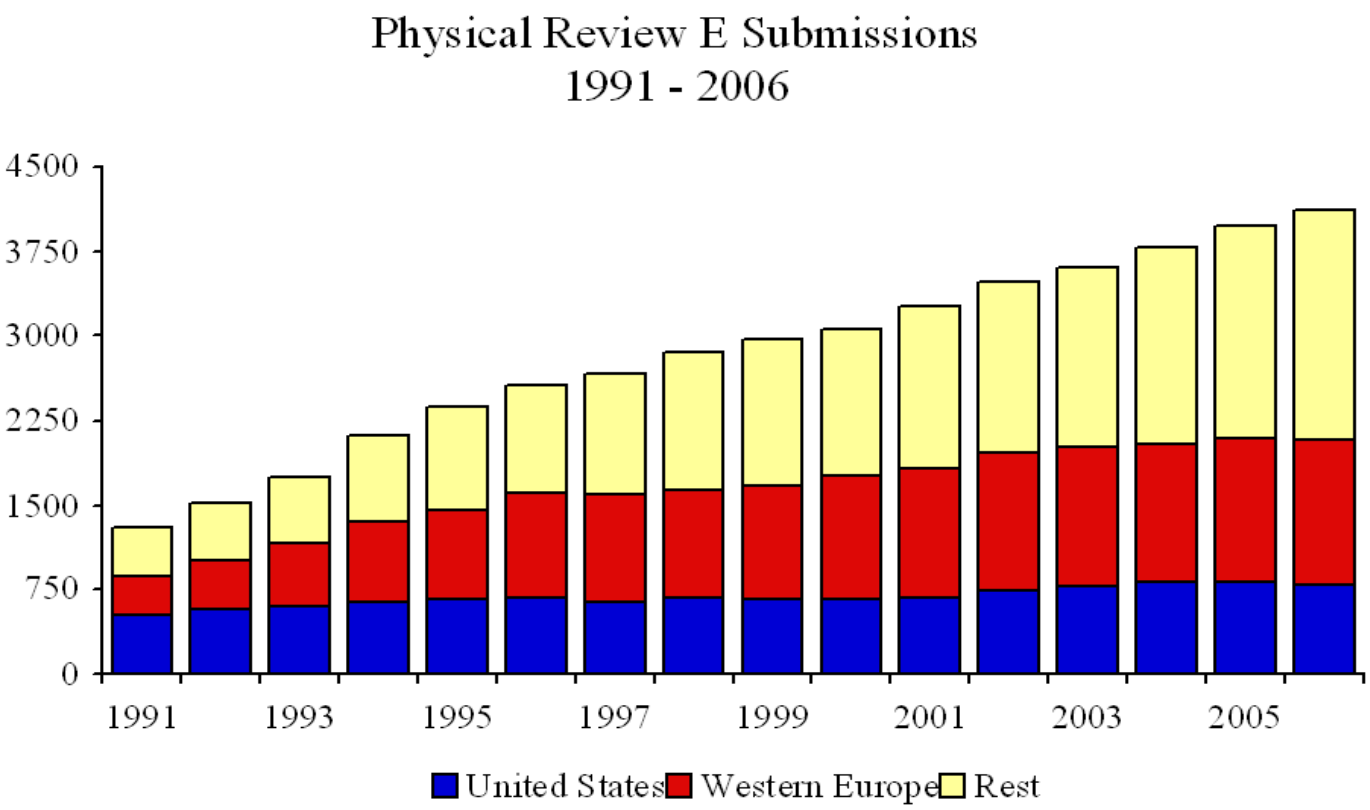

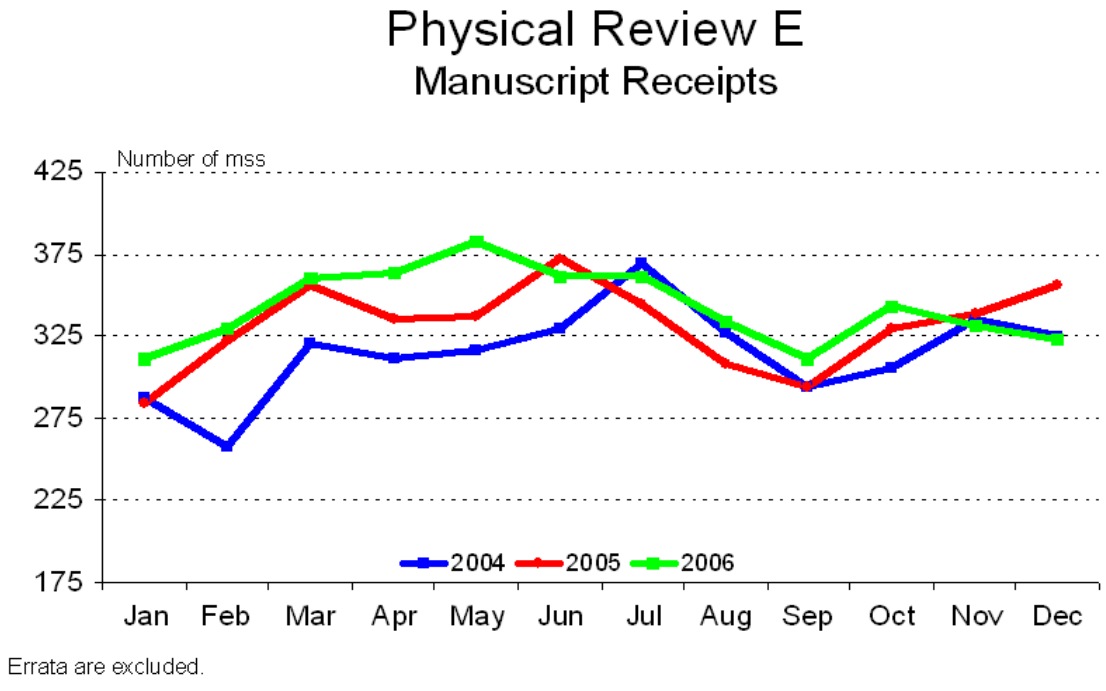

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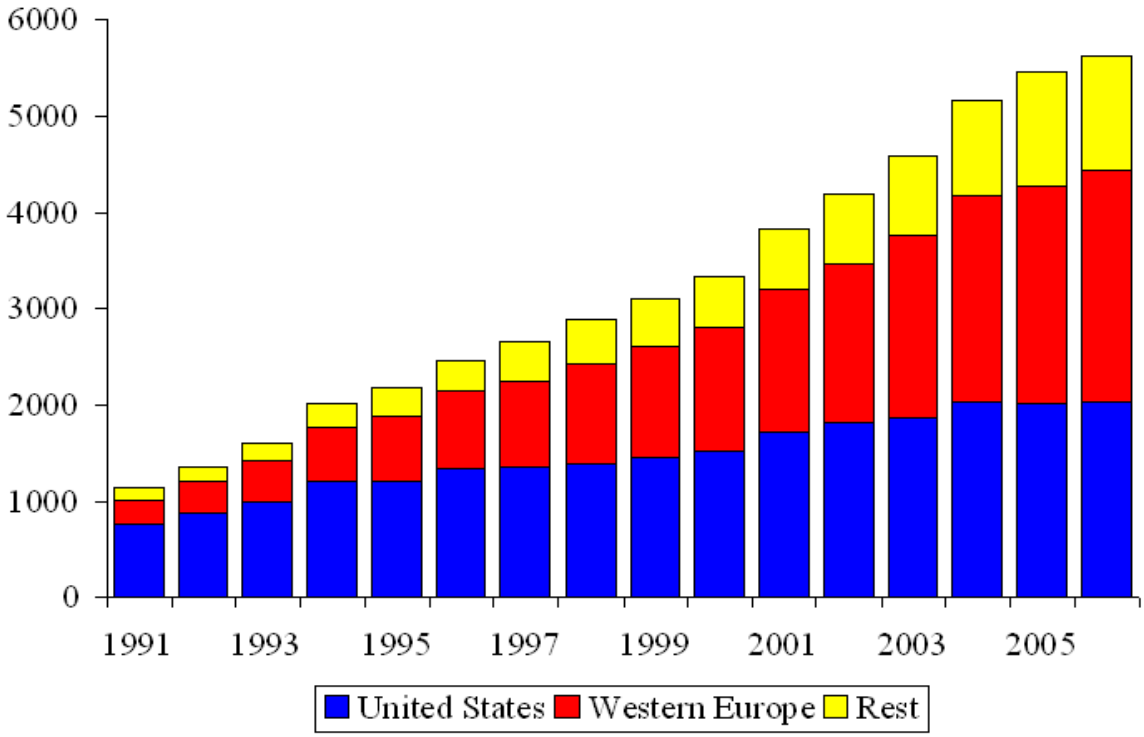

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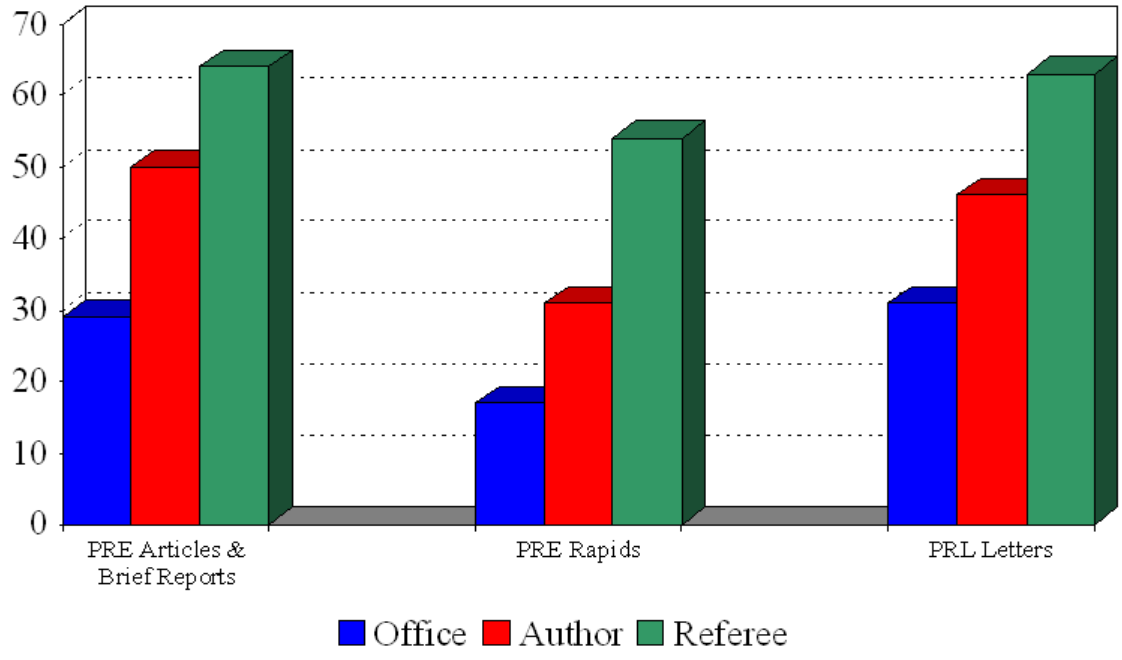

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NOMINATIONS OF DBP MEMBERS FOR 2007 APS FELLOWSHIP

On behalf of the 2007 DBP Fellowship Committee, this is a second call to invite the nominations of some of your colleagues to be recognized and become APS Fellows this year. With a DBP membership count of 1850 for 2007, we will be allowed to sponsor up to 9 candidates for the elections. Hence your attention for this process is most important so that the DBP can be better represented within the APS. All candidates must be currently members of the APS with good standing, no lapsed membership.

The DBP has ~1500 male and ~280 female members, plus ~70 with genders not given. For members with Fellowship rank, there are 245 male (16% of male pool) and only 17 female (6% of female pool). Evidently, the Division has some catching-up job to do in order to achieve minimally a meaningful gender balance. I would like to encourage the identification of qualified female members as Fellowship candidates in the coming years. (However, please understand that any premature nominations, male or female alike, are not desirable.)

The instructions and forms for the nominations are available on APS website, http://www.aps.org/programs/honors/fellowships/index.cfm. New nominations for DBP-sponsored candidates and updated information for deferred nominees must be received by May 1, 2007, for the next review.

All nomination forms forms and supporting materials should be sent to:

Executive Officer
ATTN: Fellowship Program
The American Physical Society
One Physics Ellipse
College Park, MD 20740-3844

For any questions, please contact the Fellowship Office directly via e-mail: fellowship@aps.org, or by telephone: (301) 209-3268. Thank you so much for your help!

Shirley Chan
Secretary-Treasurer
Division of Biological Physics

DBP COMMITTEE ANNOUNCEMENT

NOMINATIONS FOR
2008 MAX DELBRUCK PRIZE
IN BIOLOGICAL PHYSICS

The Max Delbruck Prize recognizes outstanding achievements in biological physics research. The prize consists of $10,000, an allowance for travel to attend the meeting at which the prize is awarded, and a certificate citing the contributions made by the recipient or recipients. It is presented biennially in even-numbered years.

Prior to 2008, this prize was awarded as the Biological Physics Prize.

The prize was established in 1981 by friends of the Division of Biological Physics and renamed the Max Delbruck Prize in 2006 in conjunction with a campaign that endowed the prize. The successful fundraising efforts enabled the increase of the prize amount from $5,000 to $10,000. Key contributors include an anonymous donor, a former student of John Hopfield, and all DBP members as a group through a lump-sum transfer from DBP operating funds.

Nomination Deadline: The deadline for submission of nominations for the prize to be awarded in 2008 is: July 1, 2007.

Five (5) copies of nominations and supporting documentation for the 2008 Prize should be sent to the Chair of the 2008 Selection Committee:

Prof. John Nagle
Carnegie Mellon University
Department of Physics
Pittsburgh, PA 15213
Phone (412) 268-2764
Fax (412) 681-0648
E-mail nagle@andrew.cmu.edu

Nomination Guidelines are listed on: http://www.aps.org/programs/honors/nomination.cfm

Rules & Eligibility:

Nominations are open to scientists of all nationalities regardless of the geographical site at which the work was done. The prize may be awarded to more than one investigator on a shared basis. Nominations are active for three cycles.

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6 International Conferences of Biological Physics
ICBP 2007

5th Southern Cone Biophysics Congress

Montevideo - Uruguay 27-31 August 2007

ICBP 2007 - SCBC 2007

International Union of Pure and Applied Physics - IUPAP
International Union for Pure and Applied Biophysics - IUPAB
Souther Cone Biophysics Group

AFA-SAB-Argentina | SBF-SBB-Brasil | SUF-SBSB-Uruguay

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Proceedings will be published in a special issue of the Journal of Biological Physics after peer-review.

Travel grants will be available. Priority will be given to participants from developing countries. We expect to be able to provide considerable support.

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Plenary Lectures

Symposia

Posters

Commercial Exhibitions

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On behalf of

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- **International Union for Pure and Applied Biophysics (IUPAB)**
- **Iberoamerican Federation of Physical Societies (FEIASOFI)**
- **Southern Cone Biophysical Societies (SCBS)**
- **Asociación Física Argentina (AFA)**
- **Sociedad Argentina de Biofísica (SAB)**
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- **Sociedad Uruguaya de Física (SUF)**
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we are pleased to invite you to attend the joint 6th International Conference on Biological Physics and the 5th Southern Cone Biophysics Congress, to be held in Montevideo,

DEADLINES

February 28, 2007
Request for Travel Grants

May 20, 2007
Nominations for IUPAP Young Scientist Prize

June 1, 2007
Abstract reception at the Conference Secretariat

June 1, 2007
Advance registration with reduced fee

June 30, 2007
Hotel reservation and social programs

Please make the effort to send your registration and abstracts as early as possible. Early abstracts will be available online prior to the conference.

TRAVEL GRANTS

Travel grants will be available. Priority will be given to participants from developing countries. We expect to be able to provide considerable support.

If you will need a travel grant do not forget to mention it in the Pre- Registration. If you have already Pre-registered please send an e- mail to: corrections@icbp-2007.org.ar

Detailed information will be included in the near future.

PROCEEDINGS

A book of abstracts of all presentations and posters will be available to all participants. Proceedings will be published in a special issue of the Journal of Biological Physics after peer-review.

ACTIVITIES

PLENARY LECTURES

SYMPOSIA

POSTERS

COMMERCIAL EXHIBITIONS

SUBJECTS

1. Single molecule studies
2. Nanotechnology and surface science
3. Biosensors and medical applications
4. Charge transfer in biomolecules, and photobiology
5. Structure and dynamics of biomolecules
6. Molecular Machines
7. Physics of subcellular structures
8. Modelling of Cellular Process
9. Physics of the nervous system
10. Evolution and the origin of life
11. Complex systems in Biological Physics
12. General Biological Physics
13. Protein folding-unfolding and disordered states
14. Energy transduction
15. Membranes and Transport
16. Biological reactions, experiments and modelling

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CONVERENCE ANNOUNCEMENT

Nonlinear Sciences Gordon Research Conference 2007

Sunday, June 24 - Friday, June 29, 2007
Colby College, Waterville ME

This year's Nonlinear Sciences GRC will feature invited talks on topics ranging from fluid instabilities, disordered systems and pattern formation to nonlinearities in biological systems and dynamic networks. A list of topics and invited speakers can be found on the link below.

http://www.grc.org/programs.aspx?year=2007&program=nonlin

Some funds are available to support graduate student and postdocs travel and conference registration.

To attend, there are two steps.
First, you must APPLY and be accepted
by the conference chair.
Once your application is accepted you must
REGISTER to attend the conference.

Talks are selected and organized to highlight the frontier of nonlinear dynamics and research that pushes through boundaries between disciplines.