

Group Seminar Biological Physics
February 4, 2008
Journal Scan

ArXiv

- 1 Ramin Golestanian, Armand Ajdari
Three-Sphere Low Reynolds Number Swimmer Revisited
arXiv:0711.3700.
URL: <http://arxiv.org/abs/arXiv:0711.3700>

Biophysical Journal

- 2 Shantanu Sharma and Nikolay V. Dokholyan
DNA Sequence Mediates Nucleosome Structure and Stability
Biophys. J. 2008 94: 1-3
doi:10.1529/biophysj.107.119172.
- 3 Tong Zhao and Aaron R. Dinner
Apparent Directional Scanning for DNA Repair
Biophys. J. 2008 94: 47-52
doi:10.1529/biophysj.107.110619.
- 4 Galina Reshes, Sharon Vanounou, Itzhak Fishov, and Mario Feingold
Cell Shape Dynamics in Escherichia coli
Biophys. J. 2008 94: 251-264
doi:10.1529/biophysj.107.104398.
- 5 Zvi Teff, Zvi Priel, and Levi A. Gheber
The Forces Applied by Cilia Depend Linearly on Their Frequency Due to Constant Geometry of the Effective Stroke
Biophys. J. 2008 94: 298-305
doi:10.1529/biophysj.107.111724.
- 6 Margaritis Voliotis, Netta Cohen, Carmen Molina-París, and Tanniemola B. Liverpool
Fluctuations, Pauses, and Backtracking in DNA Transcription
Biophys. J. 2008 94: 334-348
doi:10.1529/biophysj.107.105767.
- 7 Jeong-Rae Kim, Yeoin Yoon, and Kwang-Hyun Cho
Coupled Feedback Loops Form Dynamic Motifs of Cellular Networks
Biophys. J. 2008 94: 359-365
doi:10.1529/biophysj.107.105106.
- 8 Janina Beeg, Stefan Klumpp, Rumiana Dimova, Rubèn Serral Gracià, Eberhard Unger and Reinhard Lipowsky
Transport of Beads by Several Kinesin Motors
Biophys. J. 2008 94: 532-541
doi:10.1529/biophysj.106.097881.

9 Raoul N. Frese, Josep C. Pàmies, John D. Olsen, Svetlana Bahatyrova, Chantal D. van der Weij-de Wit, Thijs J. Aartsma, Cees Otto, C. Neil Hunter, Daan Frenkel, and Rienk van Grondelle
Protein Shape and Crowding Drive Domain Formation and Curvature in Biological Membranes
Biophys. J. 2008 94: 640-647
doi:10.1529/biophysj.107.116913.

10 Claudia Tanja Mierke, Philip Kollmannsberger, Daniel Paranhos Zitterbart James Smith, Ben Fabry, and Wolfgang Heinrich Goldmann
Mechano-Coupling and Regulation of Contractility by the Vinculin Tail Domain
Biophys. J. 2008 94: 661-670
doi:10.1529/biophysj.107.108472.

11 Yuxia Luan, Oliver Lieleg, Bernd Wagner, and Andreas R. Bausch
Micro- and Macrorheological Properties of Isotropically Cross-Linked Actin Networks
Biophys. J. 2008 94: 688-693
doi:10.1529/biophysj.107.112417.

Development

12 Carlos Estella and Richard S. Mann
Logic of Wg and Dpp induction of distal and medial fates in the Drosophila leg
Development 2008 135: 627-636.
doi: 10.1242/dev.014670

13 Yuichi Nishi, Eric Rogers, Scott M. Robertson, and Rueyling Lin
Polo kinases regulate C. elegans embryonic polarity via binding to DYRK2-primed MEX-5 and MEX-6
Development 2008 135: 687-697.
doi: 10.1242/dev.013425

14 Penelope Hayward, Tibor Kalmar, and Alfonso Martinez Arias
Wnt/Notch signalling and information processing during development
Development 2008 135: 411-424.
doi: 10.1242/dev.000505

15 William C. Dunty, Jr, Kristin K. Biris, Ravindra B. Chalamalasetty, Makoto M. Taketo, Mark Lewandoski, and Terry P. Yamaguchi
Wnt3a/\u03b2-catenin signaling controls posterior body development by coordinating mesoderm formation and segmentation
Development 2008 135: 85-94.
doi: 10.1242/dev.009266

EPL Journal

16 I.M Kulic and P C Nelson
Hitchhiking through the cytoplasm
EPL 81 18001 (2008)

17 B.S.Gutkin J Jost and H. C. Tuckwell
Transient termination of spiking by noise in coupled neurons
EPL 81 20005 (2008)

- 18 G. Bianconi
The entropy of randomized network ensembles
EPL 81 28005 (2008)

Eur Phys J E Soft Matter

- 19 Schmiedeberg M, Roth J, Stark H.
Brownian particles in random and quasicrystalline potentials:
How they approach the equilibrium
Eur Phys J E Soft Matter. 2007 Dec;24(4):367-77. Epub 2008 Jan 18.
- 20 Pica Ciamarra M, Coniglio A, De Martino D, Nicodemi M.
Shear- and vibration-induced order-disorder transitions in granular media.
Eur Phys J E Soft Matter. 2007 Dec;24(4):411-5. Epub 2008 Jan 17.
- 21 Benhamou M, Joudar I, Kaidi H.
Phase separation between phospholipids and grafted polymer chains
onto a fluctuating membrane
Eur Phys J E Soft Matter. 2007 Dec;24(4):343-51. Epub 2008 Jan 18.
- 22 Kim AS.
Permeate flux inflection due to concentration polarization in crossflow
membrane filtration: A novel analytic approach.
Eur Phys J E Soft Matter. 2007 Dec;24(4):331-41. Epub 2008 Jan 8.

Journal of Theoretical Biology

- 23 Andreas Bohn and Jordi García-Ojalvo
Synchronization of coupled biological oscillators under spatially
heterogeneous environmental forcing
Journal of Theoretical Biology
Volume 250, Issue 1, 7 January 2008, Pages 37-47
- 24 Dong Konga, Baohua Jib and Lanhong Dai
Nonlinear mechanical modeling of cell adhesion
Journal of Theoretical Biology
Volume 250, Issue 1, 7 January 2008, Pages 75-84

Nature

- 25 Eran Segal, Tali Raveh-Sadka, Mark Schroeder, Ulrich Unnerstall & Ulrike Gaul
Predicting expression patterns from regulatory sequence in *Drosophila*
segmentation,
Nature 451, 535-540
- 26 D. A. Warner & R. Shine
The adaptive significance of temperature-dependent sex determination in
a reptile
Nature 451, 566-568
- 26 David M. Raizen, John E. Zimmerman, Matthew H. Maycock, Uyen D. Ta,
Young-jai You, Meera V. Sundaram & Allan I. Pack
Lethargus is a *Caenorhabditis elegans* sleep-like state
Nature 451, 569-572

- 27 John Vandermeer, Ivette Perfecto & Stacy M. Philpott
Clusters of ant colonies and robust criticality in a tropical agroecosystem
Nature 451, 457-459
- 28 Tohru Minamino & Keiichi Namba
Distinct roles of the FliI ATPase and proton motive force in bacterial
flagellar protein export
Nature 451, 485-488
- 29 J. F. Prather, S. Peters, S. Nowicki & R. Mooney,
Precise auditory.vocal mirroring in neurons for learned vocal communication
Nature 451, 305-310
- 30 Peng Yin, Harry M. T. Choi, Colby R. Calvert & Niles A. Pierce
Programming biomolecular self-assembly pathways
Nature 451, 318-322
- 31 Jaillon, Khaled Bouhouche, Jean-François Gout, Jean-Marc Aury, Benjamin Noel,
Baptiste Saudemont, Mariusz Nowacki, Vincent Serrano, Betina M. Porcel,
Béatrice Ségurens, Anne Le Mouël, Gersende Lepère, Vincent Schächter, Mireille
Bétermier, Jean Cohen, Patrick Wincker, Linda Sperling, Laurent Duret &
Eric Meyer
Translational control of intron splicing in eukaryotes, Olivier
Nature 451, 359-362
- 32 Antonina Roll-Mecak & Ronald D. Vale
Structural basis of microtubule severing by the hereditary spastic paraplegia
protein spastin
Nature 451, 363-367
- 33 Y. Bitterman, R. Mukamel, R. Malach, I. Fried & I. Nelken
Ultra-fine frequency tuning revealed in single neurons of human
auditory cortex,
Nature 451, 197-201
- 34 Wenqiang Yu, David Gius, Patrick Onyango, Kristi Muldoon-Jacobs,
Judith Karp, Andrew P. Feinberg & Hengmi Cui
Epigenetic silencing of tumour suppressor gene p15 by its antisense RNA
Nature 451, 202-206
- 35 Arthur R. Houweling & Michael Brecht
Behavioural report of single neuron stimulation in somatosensory cortex
Nature 451, 65-68
- 36 Kirk Beebe, Marissa Mock, Eve Merriman & Paul Schimmel
Distinct domains of tRNA synthetase recognize the same base pair
Nature 451, 90-93
- 37 Jeffrey R. Chabot, Juan M. Pedraza, Prashant Luitel & Alexander van
Oudenaarden
Stochastic gene expression out-of-steady-state in the cyanobacterial
circadian clock,
Nature 450, 1249-1252

38 Qi Zhang, Andrew C. Stelzer, Charles K. Fisher & Hashim M. Al-Hashimi
Visualizing spatially correlated dynamics that directs RNA conformational transitions,
Nature 450, 1263-1267

Phys Rev. Lett.

39 Henry C. Fu and Thomas R. Powers and Charles W. Wolgemuth
Theory of Swimming Filaments in Viscoelastic Media
Phys. Rev. Lett. 99, 258101 (2007)
URL: <http://link.aps.org/abstract/PRL/v99/e258101>

40 Erik Geissler,¹ Anne-Marie Hecht,¹ and Ferenc Horkay²
Scaling Equations for a Biopolymer in Salt Solution
Phys. Rev. Lett. 99, 267801 (2007)
URL: <http://link.aps.org/abstract/PRL/v99/e267801>

41 Tetsu Saigusa Atsushi Tero and Toshiyuki Nakagaki Yoshiki Kuramoto
Amoebae Anticipate Periodic Events
Phys. Rev. Lett. 100, 018101 (2008)
URL: <http://link.aps.org/abstract/PRL/v100/e018101>

42 Chongli Yuan,¹ Huimin Chen,² Xiong Wen Lou,¹ and Lynden A. Archer¹
DNA Bending Stiffness on Small Length Scales
Phys. Rev. Lett. 100, 018102 (2008)
URL: <http://link.aps.org/abstract/PRL/v100/e018102>

43 Jinhyuk Lee and Wonpil Im
Transmembrane Helix Tilting: Insights from Calculating the Potential of Mean Force
Phys. Rev. Lett. 100, 018103 (2008)
URL: <http://link.aps.org/abstract/PRL/v100/e018103>

44 F. C. MacKintosh^{1,2} and A. J. Levine³
Nonequilibrium Mechanics and Dynamics of Motor-Activated Gels
Phys. Rev. Lett. 100, 018104 (2008)
URL: <http://link.aps.org/abstract/PRL/v100/e018104>

45 Chi-Tin Shih,¹ Stephan Roche,² and Rudolf A. Römer³
Point-Mutation Effects on Charge-Transport Properties of the Tumor-Suppressor Gene p53
Phys. Rev. Lett. 100, 018105 (2008)
URL: <http://link.aps.org/abstract/PRL/v100/e018105>

46 Andreas Hanke,¹ Martha G. Ochoa,¹ and Ralf Metzler
Denaturation Transition of Stretched DNA
Phys. Rev. Lett. 100, 018106 (2008)
URL: <http://link.aps.org/abstract/PRL/v100/e018106>

47 Sergei F. Chekmarev,^{1,2} Andrey Yu. Palyanov,¹ and Martin Karplus
Hydrodynamic Description of Protein Folding
Phys. Rev. Lett. 100, 018107 (2008)
URL: <http://link.aps.org/abstract/PRL/v100/e018107>

- 48 Jürgen Baier,¹ Martin F. Richter,¹ Richard J. Cogdell,² Silke Oellerich,¹ and Jürgen Köhle
Determination of the Spectral Diffusion Kernel of a Protein by Single-Molecule Spectroscopy
Phys. Rev. Lett. 100, 018108 (2008)
URL: <http://link.aps.org/abstract/PRL/v100/e018108>
- 49 Eric C. Dykeman and Otto F. Sankey
Low Frequency Mechanical Modes of Viral Capsids: An Atomistic Approach
Phys. Rev. Lett. 100, 028101 (2008)
URL: <http://link.aps.org/abstract/PRL/v100/e028101>
- 50 Katja M. Taute,¹ Francesco Pampaloni,² Erwin Frey,³ and Ernst-Ludwig Florin
Microtubule Dynamics Depart from the Wormlike Chain Model
Phys. Rev. Lett. 100, 028102 (2008)
URL: <http://link.aps.org/abstract/PRL/v100/e028102>
- 51 K. S. Turitsyn^{1,2} and S. S. Vergeles
Wrinkling of Vesicles during Transient Dynamics in Elongational Flow
Phys. Rev. Lett. 100, 028103 (2008)
URL: <http://link.aps.org/abstract/PRL/v100/e028103>
- 52 Ramin Golestanian and Armand Ajdari
Mechanical Response of a Small Swimmer Driven by Conformational Transitions
Phys. Rev. Lett. 100, 038101 (2008)
URL: <http://link.aps.org/abstract/PRL/v100/e038101>
- 53 Jacobo Aguirre and Susanna C. Manrubia
Effects of Spatial Competition on the Diversity of a Quasispecies
Phys. Rev. Lett. 100, 038106 (2008)
URL: <http://link.aps.org/abstract/PRL/v100/e038106>
- 54 Tsvi Tlusty
Rate-Distortion Scenario for the Emergence and Evolution of Noisy Molecular Codes
Phys. Rev. Lett. 100, 048101 (2008)
URL: <http://link.aps.org/abstract/PRL/v100/e048101>
- 55 Sven Jahnke,^{1,2,3} Raoul-Martin Memmesheimer,^{1,2,3} and Marc Timme
Stable Irregular Dynamics in Complex Neural Networks
Phys. Rev. Lett. 100, 048102 (2008)
URL: <http://link.aps.org/abstract/PRL/v100/e048102>
- 56 Paul Friedel,¹ Bruce A. Young,² and J. Leo van Hemmen
Auditory Localization of Ground-Borne Vibrations in Snakes
Phys. Rev. Lett. 100, 048701 (2008)
URL: <http://link.aps.org/abstract/PRL/v100/e048701>

PLoS Biology

- 57 Nadell CD, Xavier JB, Levin SA, Foster KR.
The evolution of quorum sensing in bacterial biofilms.
PLoS Biol. 2008 Jan;6(1):e14.
PMID: 18232735 [PubMed - in process]

- 58 Hromádka T, Deweese MR, Zador AM
Sparse representation of sounds in the unanesthetized auditory cortex
PLoS Biol. 2008 Jan;6(1):e16.
PMID: 18232737 [PubMed - in process]
- Sandal M, Valle F, Tessari I, Mammi S, Bergantino E, Musiani F, Brucale M,
59 Bubacco L, Samorì B.
Conformational Equilibria in Monomeric alpha-Synuclein at the
Single-Molecule Level.
PLoS Biol. 2008 Jan;6(1):e6. PMID: 18198943 [PubMed - in process]
- 60 Galletta BJ, Chuang DY, Cooper JA
Distinct roles for arp2/3 regulators in actin assembly and endocytosis
PLoS Biol. 2008 Jan;6(1):e1
PMID: 18177206 [PubMed - in process]
- 61 Hornung G, Barkai N.
Noise propagation and signaling sensitivity in biological networks:
a role for positive feedback.
PLoS Comput Biol. 2008 Jan;4(1):e8. Epub 2007 Dec 5.
- 62 Del Sol A, Carbonell P.
The Modular Organization of Domain Structures: Insights into
Protein-Protein Binding.
PLoS Comput Biol. 2007 Dec 7;3(12):e239 [Epub ahead of print]

PNAS

- 63 Estimation of multiple transmission rates for epidemics in heterogeneous
populations
Cook, AR; Otten, W; Marion, G, et al.
PNAS, 104 (51): 20392-20397 DEC 18 2007
- 64 Selection of mammalian cells based on their cell-cycle phase using
dielectrophoresis
Kim, U; Shu, CW; Dane, KY, et al.
PNAS, 104 (52): 20708-20712 DEC 26 2007
- 65 Giuliano Zanchetta, Michi Nakata, Marco Buscaglia, Tommaso Bellini,
and Noel A. Clark
Inaugural Paper: Phase separation and liquid crystallization of complementary
sequences in mixtures of nanoDNA oligomers
PNAS 105: 1111-1117
- 66 Martin Rosvall and Carl T. Bergstrom
Maps of random walks on complex networks reveal community structure
PNAS 105: 1118-1123
- 67 Junhua Yuan and Howard C. Berg
Resurrection of the flagellar rotary motor near zero load
PNAS 105: 1182-1185

- 68 M. Ballerini, N. Cabibbo, R. Candelier, A. Cavagna, E. Cisbani, I. Giardina, V. Lecomte, A. Orlandi, G. Parisi, A. Procaccini, M. Viale, V. Zdravkovic
From the Cover: Interaction ruling animal collective behavior depends on topological rather than metric distance: Evidence from a field study
PNAS 105: 1232-1237
- 69 Sivaraj Sivaramakrishnan, James V. DeGiulio, Laszlo Lorand, Robert D. Goldman, and Karen M. Ridge
Micromechanical properties of keratin intermediate filament networks
PNAS 105: 889-894
- 70 Sascha Hilgenfeldt, Sinem Erisken, and Richard W. Carthew
Physical modeling of cell geometric order in an epithelial tissue
PNAS 105: 907-911
- 71 Peter Dieterich, Rainer Klages, Roland Preuss, and Albrecht Schwab
Anomalous dynamics of cell migration
PNAS 105: 459-463
- 72 Joanna Andrecka, Robert Lewis, Florian Brückner, Elisabeth Lehmann, Patrick Cramer, and Jens Michaelis
Single-molecule tracking of mRNA exiting from RNA polymerase II
PNAS 105: 135-140

Science

***Reports**

- 73 S. Augui, G. J. Filion, S. Huart, E. Nora, M. Guggiari, M. Maresca, A. F. Stewart, and E. Heard (7 December 2007)
Sensing X Chromosome Pairs Before X Inactivation via a Novel X-Pairing Region of the Xic
Science 318 (5856), 1632-1636. [DOI: 10.1126/science.1149420]

***Reports**

- 74 R. Sorek, Y. Zhu, C. J. Creevey, M. P. Francino, P. Bork, and E. M. Rubin (30 November 2007)
Genome-Wide Experimental Determination of Barriers to Horizontal Gene Transfer
Science 318 (5855), 1449-1452. [DOI: 10.1126/science.1147112]

***Review**

- 75 T. Clutton-Brock (21 December 2007)
Sexual Selection in Males and Females
Science 318 (5858), 1882-1885. [DOI: 10.1126/science.1133311]

***Brevia**

- 76 M. Beyer, A. Nesterov, I. Block, K. König, T. Felgenhauer, S. Fernandez, K. Leibe, G. Torralba, M. Hausmann, U. Trunk, V. Lindenstruth, F. R. Bischoff, V. Stadler, and F. Breitling (21 December 2007)
Combinatorial Synthesis of Peptide Arrays onto a Microchip
Science 318 (5858), 1888. [DOI: 10.1126/science.1149751]

*Reports

- 77 T. P. Knowles, A. W. Fitzpatrick, S. Meehan, H. R. Mott, M. Vendruscolo, C. M. Dobson, and M. E. Welland (21 December 2007)
Role of Intermolecular Forces in Defining Material Properties of Protein Nanofibrils
Science 318 (5858), 1900-1903. [DOI: 10.1126/science.1150057]

*Reports

- 78 J. Yu, M. A. Vodyanik, K. Smuga-Otto, J. Antosiewicz-Bourget, J. L. Frane, S. Tian, J. Nie, G. A. Jonsdottir, V. Ruotti, R. Stewart, I. I. Slukvin, and J. A. Thomson (21 December 2007)
Induced Pluripotent Stem Cell Lines Derived from Human Somatic Cells
Science 318 (5858), 1917-1920. [DOI: 10.1126/science.1151526]

*Reports

- 79 A. Groth, A. Corpet, A. J. L. Cook, D. Roche, J. Bartek, J. Lukas, and G. Almouzni (21 December 2007)
Regulation of Replication Fork Progression Through Histone Supply and Demand
Science 318 (5858), 1928-1931. [DOI: 10.1126/science.1148992]

*Reports

- 80 D. Vavylonis, J.-Q. Wu, S. Hao, B. O'Shaughnessy, and T. D. Pollard (4 Jan 08)
Assembly Mechanism of the Contractile Ring for Cytokinesis by Fission Yeast
Science 319 (5859), 97-100. [DOI: 10.1126/science.1151086]

*Reports

- 81 T. Schlegel, and S. Schuster (4 January 2008)
Small Circuits for Large Tasks: High-Speed Decision-Making in Archerfish
Science 319 (5859), 104-106. [DOI: 10.1126/science.1149265]

*Reports

- 82 Y. Ke, S. Lindsay, Y. Chang, Y. Liu, and H. Yan (11 January 2008)
Self-Assembled Water-Soluble Nucleic Acid Probe Tiles for Label-Free RNA Hybridization Assays
Science 319 (5860), 180-183. [DOI: 10.1126/science.1150082]

*Reports

- 83 D. Grueninger, N. Treiber, M. O. P. Ziegler, J. W. A. Koetter, M.-S. Schulze, and G. E. Schulz (11 January 2008)
Designed Protein-Protein Association
Science 319 (5860), 206-209. [DOI: 10.1126/science.1150421]

*Reports

- 84 K. A. Gurley, J. C. Rink, and A. S. Alvarado (18 January 2008)
 β -Catenin Defines Head Versus Tail Identity During Planarian Regeneration and Homeostasis
Science 319 (5861), 323-327. [DOI: 10.1126/science.1150029]

*Reports

- 85 J. M. Pedraza, and J. Paulsson (18 January 2008)
Effects of Molecular Memory and Bursting on Fluctuations in Gene Expression
Science 319 (5861), 339-343. [DOI: 10.1126/science.1144331]

*Reports

- 86 T. S. Karpova, M. J. Kim, C. Spriet, K. Nalley, T. J. Stasevich, Z. Kherrouche, L. Heliot, and J. G. McNally (25 January 2008)
Concurrent Fast and Slow Cycling of a Transcriptional Activator at an Endogenous Promoter
Science 319 (5862), 466-469. [DOI: 10.1126/science.1150559]

*Reports

- 87 J. T. Mettetal, D. Muzzey, C. Gómez-Urbe, and A. van Oudenaarden (25 January 2008)
The Frequency Dependence of Osmo-Adaptation in *Saccharomyces cerevisiae*
Science 319 (5862), 482-484. [DOI: 10.1126/science.1151582]

*Reports

- 88 S. K. Kufer, E. M. Puchner, H. Gump, T. Liedl, and H. E. Gaub (1 February 2008)
Single-Molecule Cut-and-Paste Surface Assembly
Science 319 (5863), 594-596. [DOI: 10.1126/science.1151424]

*Reports

- 89 Z. Fakhraai, and J. A. Forrest (1 February 2008)
Measuring the Surface Dynamics of Glassy Polymers
Science 319 (5863), 600-604. [DOI: 10.1126/science.1151205]

*Reports

- 90 W. J. Greenleaf, K. L. Frieda, D. A. N. Foster, M. T. Woodside, and S. M. Block (1 February 2008)
Direct Observation of Hierarchical Folding in Single Riboswitch Aptamers
Science 319 (5863), 630-633. [DOI: 10.1126/science.1151298]