

Curriculum Vitae

Dr. Maya Paczuski

Title : Head of the Complexity Science Group

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Born: April 7, 1963 in Tel-Aviv, Israel
Gender: Female
Citizenship: United States of America

Research Interests: Distributed Information Networks, Self-assembly & Self-Organization,
Complex Networks, Avalanche Dynamics, High Resolution Data Analysis
Relevance: Cell Biology, Global Computing, Online Worlds, Astrophysics, Geophysics

Higher Education:

80 - 91 Massachusetts Institute of Technology, Cambridge, Massachusetts.

6/91 Ph.D (Condensed Matter Theory). Dissertation with Mehran Kardar:
Morphologies and Critical Behavior in Films, Membranes, and Interfaces.

6/86 M.S. and B.S. in Electrical Engineering and Computer Science.

Appointments:

1/06 - Full Professor, Department of Physics and Astronomy, University of Calgary.
Founded the Complexity Science Group at U of C.

1/05 - 12/05 Visiting Scholar, Perimeter Institute for Theoretical Physics, Waterloo.
Ran the first complex systems program at PI.

9/04 - 1/05 Visiting Scientist, von Neumann Institute for Computing, Juelich, Germany.

01 - 05 Reader in Mathematical Physics, Imperial College London.

00 - 01 Governors' Lecturer in Mathematical Physics, Imperial College London.

- 8/99 - 3/00 Visiting Research Professor, NORDITA, Copenhagen, Denmark.
- 1/97 - 1/00 Tenure-track Assistant Professor, Physics Department,
University of Houston, Houston, Texas.
- Intervals
97 - 00 Visiting Research Professor, Physics Department,
Niels Bohr Institute, Copenhagen, Denmark.
Funded through the Danish Research Council. P.I. Per Bak.
- 9/91 - 9/96 Research Associate, Physics Department,
Brookhaven National Laboratory, Upton, New York.
- 6/87 - 6/91 Research Assistant, Condensed Matter Theory, M.I.T.
- 6/85 - 5/86 Research Assistant, M.I.T. Lincoln Laboratory. Masters Thesis.

Grants and Fellowships:

- 8/06 - *Visiting Researcher* on **EPSRC** grant “Market Models of Grid Computing”
with U. Harder, P. Harrison and J. Darlington
Department of Computing, Imperial College London.
- 8/06 - Principal investigator for **i-CORE** Visiting Professor in Biophysical Complexity
to support Prof. Dr. Peter Grassberger (\$330,000 over two years).
- 1/06 - Principal Investigator, University of Calgary start-up for
the Complexity Science Group (circa \$600,000 over three years).
- 2/04 **Royal Society** Conference Travel Grant to speak at:
Sun Earth Connections, Kona, Hawaii
- 11/01 - 5/03 Principal Investigator for **EPSRC** grant GR/R37357 (£60,000):
*Self-Organized Criticality in Nonconservative Systems:
Robustness and Predictability.*
- 6/00 - 5/03 co - Principal Investigator for **National Science Foundation**
grant in Materials Theory DMR-0074613 (\$210,000) with K.E. Bassler:
Cellular Models of Nonlinear Flux Flow, Vortex Rivers, and Noise.
- 10/98 - 1/00 Principal Investigator for University of Houston Energy Lab Grant (\$25,000).
Funding to support background work leading to NSF proposal.
- 8/97 - 8/99 co - Principal Investigator for **NATO** Collaborative Research Grant
Funding to support international travel. With M. Shubik and P. Bak.
Econophysics.
- 93 - 96 Funded by the “Distinguished” Postdoctoral Fellowship Program from the
U.S. Department of Energy. Held at Brookhaven National Laboratory.
- 85 - 89 Funded as a **National Science Foundation** Graduate Fellow at MIT.

Professional, Administrative, and Interdisciplinary Activities:

As Head of the Colloquium Committee, Department of Physics and Astronomy, I am charged with organizing a series of events to promote the intellectual climate and facilitate interdisciplinary collaborations by increasing communication between different teams in the department and throughout the University. 2006 -

I am organizing a "Modelling Biology Day" at the University of Calgary with Mike Surette (Medicine) and Przemyslaw Prusinkiewicz (Computer Science). This is a grass roots effort to widely explore possible points of common interest, a language for discussing problems, and collaborations between teams in different departments working on problems that are important to Biology – including engineers, computer scientists, chemists, mathematicians, biologists, physicists and individuals undertaking medical research. This activity is part of a continuing effort that also includes seeking provincial and national funding for networks of collaborations between individual research groups. 2006 -

As a visiting scientist at the Perimeter Institute for Theoretical Physics (PI), I ran the first complex systems and statistical physics program there for one year by organizing several seminar series that attracted large numbers of undergraduate students from the University of Waterloo, and by inviting distinguished scientists in complexity science to work and to give colloquia at PI. This was part an effort to increase interaction between fundamental theoretical physics and the rest of science. 2005

- 3/06 - External Awards Committee, Department of Physics and Astronomy, U of C.
- 01/06 - Graduate Studies Committee, Department of Physics and Astronomy, U of C.
- 05 Hiring Committee for two assistant professors, University of Oslo.
- 05 Hiring Committee, Department of Physics and Astronomy, U of C.
- 03 Co-organizer of the Per Bak Memorial Symposium, Copenhagen.
- 03 -04 Departmental research committee, Mathematics, Imperial College London.
- 03 - 04 Co-organizer of the joint Math/Physics Condensed Matter Theory seminar Imperial College London.
- 00 I gave five lectures in complex systems for the NORDITA Master Class in Physics for Undergraduate students from Scandinavia.
- 00 Hiring committee for Assistant Professor at NORDITA.
- 00 - 04 Departmental computing committee, Mathematics, Imperial College London.
- 97 - 98 Graduate Studies committee, University of Houston.
- 97 - 99 Colloquium committee, University of Houston.
- 98 - Referee for U.S. National Science Foundation.
- 91 - Referee for Physical Review, Physical Review Letters, Journal of Physics, Physics Letters A, and other journals.

Supervisions:

- 8/06- Mr. Jacob Foster. A Ph. D. student in my group. He is a Rhodes scholar who worked with Roger Penrose. [69]
- 9/05 - Mr. Amer Shreim. A Ph. D. student in my group who came from the American University of Beirut. [68]
- 8/06 - Mr. Andrew Berdahl. An "open student" working with me and Amer Shreim on the state space networks of random Boolean networks.
- 10/04 - 2/05 Ms. Adele Peel. Ph.D. Student. Funded by EPSRC. co-supervised with Dr. Stefano Luzzatto. *Information Theory of Complex Networks*.
- 10/01 - 5/04 Mr. David Hughes. Ph.D. Thesis. Funded by EPSRC. *Avalanches, Self-Organized Networks, and Solar Flares*. [49, 52, 55, 56]
- 05 Ms. Florencia Tettamanti. Summer undergraduate research project co-supervised with Dr. Uli Harder in Computing. *Waiting Times in the 1D Manna Model*.
- 05 Mr. Tejas Shah. Fourth year joint computing-mathematics project co-supervised with Dr. Uli Harder. This work provided the methodological basis for our EPSRC grant on Grid markets. [61]
- 03 - 04 Mr. Colin McCloud. Third year project in Physics. *On the Modelling of Sexually Transmitted Disease in Scale-free Networks*.
- 03 - 04 Mr. Wen Hong. Third year project. *Complex Networks and Food Webs*.
- 03 - 04 Mr. Ahsan Nazeer. Fourth year project. *Complex and Scale-Free Networks*.

Postdoctoral and Research Associates:

- 03/06 - Dr. Vadim Uritsky, Research Associate, supported by my start-up from U of C. Now Adjunct Professor in the Department of Physics and Astronomy. [70]
- 08/06 - Dr. Vishal Sood, Postdoctoral Fellow in my group, supported by the Institute for Biocomplexity and Informatics.
- 99 - 00 Dr. Alvaro Corral. Supported by EU funds at the Niels Bohr Institute. Co-supervised with Prof. Per Bak. Now a Research Professor at Universitat Aut3noma de Barcelona. [39,41]
- 01 Dr. J3rn Davidsen. Supported by a grant for doctoral students from the German organization DAAD . Now Assistant Professor in the Department of Physics and Astronomy, U of C. [51,59,66]
- 01 - 02 Dr. Stefano Lise. Supported by a Marie Curie Fellowship and a grant from EPSRC. Now a Research Associate in the Department of Biochemistry and Molecular Biology, University College London. [44,46,50,60]
- 03 Dr. Marco Baiesi. Supported by a grant from EPSRC. Now a Postdoctoral Fellow in Florence. [54,58,62,65]
- 09/ 05- Dr. Kim Baskerville, visitor at the Perimeter Institute and Research Associate in my group. [67]
- 98 - 00 Dr. Kevin Bassler. Supported by my start-up funds from the University of Houston. We received an NSF grant together. Now Associate Professor, Department of Physics, University of Houston. [36,37,41,42,47,48]

Summary of Teaching Activities:

- 8/97 Lectures in Graduate Electricity and Magnetism. (Houston)
a required course covering the first half of Jackson (20+ students).
- 1/98 Lectures in Undergraduate Electricity and Magnetism. (Houston)
a required course (30+ students).
- 8/98 Lectures in Graduate Statistical Mechanics. (Houston)
a required course based on my own course notes (20+ students).
- 10/00 - Lectures in Undergraduate Electrodynamics and Special Relativity. (Imperial)
an optional third year course based on my own course notes (15+ students).
- 10/00 - Tutorials for Undergraduate Math Methods I. (Imperial)
- 1/01 - Tutorials for Undergraduate Mechanics. (Imperial)
- 1/01 - Tutorials for Undergraduate Differential Equations. (Imperial)
- 3/01 - Tutorials in Undergraduate Vector Field Theory. (Imperial)
- 3/01 - Lectures in Statistical Mechanics II. (Imperial)
an optional third year course based on my own course notes (5+ students).
- 10/03 - Lectures in Undergraduate Vector Field Theory. (Imperial)
a large required second year course in vector calculus for all math majors
based on course notes (200+ students).
- Tutees: I took on about six first year personal tutees, seen either
individually or in pairs for about half an hour per week. (Imperial)
- Projects: I supervised about 5 first year students working on individual
projects, and a second year group project on self-organized criticality. (Imperial)
- Seminars: I ran an extended seminar series on complex systems that attracted
many undergrads from the University of Waterloo. (Perimeter Institute)

Recent Invited International Conference Talks:

- Networks in Physics*, New Directions in Complex Systems. Istanbul, September, 2006.
- Basics of Complexity: Self-organization, Information Theory and Networks*. Les Houches Summer School: "Complex Systems", Les Houches, France. July, 2006.
- Turbulence and Networks on the Earth and Elsewhere*, Nonlinearities: From Turbulence to Magic, Copenhagen, Denmark. May, 2006.
- Networks in Physics*, Dynamics on Complex Networks and Applications. Max-Planck-Institut für Physik Komplexer Systeme, Dresden, Germany. February, 2006.
- Is the Universe in a Self-Organized Critical State?* Nonlinear Cosmology: Turbulence and Fields, Trieste, Italy. May, 2005.
- The Coronal Magnetic Field: Structure and Dynamics*, World Space Environment Forum, Graz, Austria. May, 2005.
- Complex Networks in Astrophysical and Geophysical Systems*, Complexity, Metastability and Nonextensivity, Erice (Sicily), Italy. July, 2004.
- Scale-free networks of magnetic flux in the corona*, Multiscale Coupling in Sun Earth Processes, Kona, Hawaii. February, 2004.
- Scale-Free Networks of Earthquakes and Aftershocks*, Seismicity Pattern Dynamics, European Geosciences Union Meeting, Nice, France. April, 2004.
- A Heavenly Example of Scale Free Networks and Self-Organized Criticality*, 8th Latin American Workshop on Nonlinear Phenomena, Salvador, Brazil. September, 2003.
- A multi-loop reconnection model for Solar Activity*, New Themes in Plasma and Fluid Turbulence, Royal Society, London. May, 2003.

List of Publications (Approximately 1500 citations in Web of Knowledge)

1. *Harmonics of Orientational Order in Liquid Crystals*, M. Paczuski and M. Kardar, Phys. Rev. Lett. **60**, 861-861 (1988).
2. *Landau Theory of the Crumpling Transition*, M. Paczuski, M. Kardar, and D.R. Nelson, Phys. Rev. Lett. **60**, 2638-2640 (1988).
3. *Renormalization Group Analysis of the Crumpling Transition in Large d* , M. Paczuski and M. Kardar, Phys. Rev. A **39**, 6086-6089 (1989).
4. *Kosterlitz-Thouless Transition with Symmetry-breaking Fields and Quenched Random Interactions*, M. Paczuski and M. Kardar, Phys. Rev. B **43**, 8331-8336 (1991).
5. *Growth Induced Roughening of Crystalline Facets*, T. Hwa, M. Kardar, and M. Paczuski, Phys. Rev. Lett. **66**, 441-444 (1991).
6. *Divergence of Energy Fluctuations in a Growing Interface*, M. Paczuski, Phys. Rev. Lett. **66**, 1545-1545 (1991).
7. *Surface Ordering and Finite-Size Effects in Liquid-Crystal Films*, H. Li, M. Paczuski, M. Kardar, K. Huang, Phys. Rev. B **44**, 8274-8283 (1991).
8. *Finite-size Scaling in Layered Systems with Surface Ordering*, H. Li, M. Paczuski, M. Kardar, K. Huang, Physica A **177**, 207-212 (1991).
9. *Fluctuations of a Nonequilibrium Interface*, M. Paczuski, M. Barma, S. Majumdar, and T. Hwa, Phys. Rev. Lett. **69**, 2735-2735 (1992).
10. *Theory of the One-dimensional Forest Fire Model*, M. Paczuski and P. Bak, Phys. Rev. E **48**, R3214-R3216 (1993).
11. *Why Nature is Complex*, P. Bak and M. Paczuski, Phys. World **6**, No. 12, 39-43 (1993).
12. reply to *Renormalization of the Driven sine-Gordon Equation in 2+1 Dimensions*, T. Hwa, M. Kardar, and M. Paczuski, Phys. Rev. Lett. **72**, 785-785 (1994).
13. *Scaling of Fluctuations in One-dimensional Interface and Particle - Hopping models*, P.M. Binder, M. Paczuski, and M. Barma, Phys. Rev. E **49**, 1174-1181 (1994).
14. *Field Theory for a Model of Self-Organized Criticality*, M. Paczuski, S. Maslov, and P. Bak, Europhys. Lett. **27**, 97-102 (1994); Erratum **28**, 295-296 (1994).
15. *Scaling Theory of Depinning in the Sneppen Model*, S. Maslov and M. Paczuski, Phys. Rev. E **50**, R643-R646 (1994).
16. *Principles of Phase Transitions in Two-dimensional Systems*, P. Bak and M. Paczuski, in "The Chemical Physics of Solid Surfaces: Phase Transitions and Adsorbate Restructuring at Metal Surfaces," eds. D.A. King and D.P. Woodruff (Elsevier, Amsterdam, 1994), Vol. 7, 1-32.
17. *Avalanches and 1/f Noise in Evolution and Growth Models*, S. Maslov, M. Paczuski, and P. Bak, Phys. Rev. Lett. **73**, 2162-2165 (1994).
18. *Complexity and Extremal Dynamics*, P. Bak, M. Paczuski, and S. Maslov, Braz. J. Phys. **24**, 915 (1994).
19. *Complexity, Contingency, and Criticality*, P. Bak and M. Paczuski, Proc. Nat. Acad. Sci. **92**, 6689-6696 (1995).
20. *The Dynamics of Fractals*, P. Bak and M. Paczuski, Fractals **3**, 415-429 (1995).
21. *Emergent Traffic Jams*, K. Nagel and M. Paczuski, Phys. Rev. E **51**, 2909-2918 (1995).

22. *Laws for Stationary States in Systems with Extremal Dynamics*, M. Paczuski, P. Bak, and S. Maslov, Phys. Rev. Lett. **74**, 4253-4256 (1995).
23. *Dynamic Scaling: Distinguishing Self-Organized from Generically Critical Systems*, M. Paczuski, Phys. Rev. E **52**, R2137-R2140 (1995).
24. *Avalanche Dynamics in Evolution, Growth, and Depinning Models* M. Paczuski, S. Maslov, and P. Bak, Phys. Rev. E **53**, 414-443 (1996).
25. *Exact Results for Spatiotemporal Correlations in a Self-Organized Critical Model of Punctuated Equilibrium*, S. Boettcher and M. Paczuski, Phys. Rev. Lett. **76**, 348-351 (1996).
26. *Ultrametricity and Memory in a Solvable Model of Self-Organized Criticality*, S. Boettcher and M. Paczuski, Phys. Rev. E **54**, 1082-1095 (1996).
27. *Universality in Sand Piles, Interface Depinning, and Earthquake Models*, M. Paczuski and S. Boettcher, Phys. Rev. Lett. **77**, 111-114 (1996).
28. *Self-Organized Criticality and $1/f$ Noise in Traffic*, M. Paczuski and K. Nagel, in "Traffic and Granular Flow," eds. D.E. Wolf, M. Schreckenberg, and A. Bachem (World Scientific, Singapore, 1996), 73-86. Also web publication <http://xxx.lanl.gov/abs/cond-mat/9602011>.
29. *Mass Extinctions vs. Uniformitarianism in Biological Evolution*, P. Bak and M. Paczuski, in "Physics of Biological Systems" Lecture Notes in Physics, ed. H. Flyvbjerg (Springer-Verlag, Heidelberg, 1997). Also web publication <http://xxx.lanl.gov/abs/cond-mat/9602012>.
30. *Price Variations in a Stock Market with Many Agents*, P. Bak, M. Paczuski, and M. Shubik, Physica A **246**, 430-453 (1997).
31. *Aging in a Model of Self-Organized Criticality*, S. Boettcher, and M. Paczuski, Phys. Rev. Lett. **79**, 889-892 (1997).
32. *Avalanches and Waves in the Abelian Sandpile Model*, M. Paczuski and S. Boettcher, Phys. Rev. E **56**, R3745-R3748 (1997).
33. *Broad Universality in Self-Organized Critical Phenomena*, S. Boettcher and M. Paczuski, Physica D **107**, 171-173 (1997).
34. *Experts, Noise Traders, and Fat Tail Distributions*, P. Bak, M. Paczuski, and M. Shubik, Economic Notes **26**, 251 (1997).
35. *A Simple Model of Large Scale Organization in Evolution*, **S.C. Manrubia** and M. Paczuski, Int. J. Mod. Phys. C Vol. 9, No. 7, 1025-1032 (1998).
36. *Simple Model of Superconducting Vortex Avalanches*, K.E. Bassler and M. Paczuski, Phys. Rev. Lett. **81**, 3761-3764 (1998).
37. *Braided Rivers and Superconducting Vortex Avalanches*, K.E. Bassler, M. Paczuski, and G. Reiter, Phys. Rev. Lett. **83**, 3956-3959 (1999).
38. *Self-Organization of Complex Systems*, for the Proceedings of the 12th Chris Engelbrecht Summer School, web publication <http://xxx.lanl.gov/abs/cond-mat/9906077>.
39. *Avalanche Merging and Continuous Flow in a Sandpile Model*, A. Corral and M. Paczuski, Phys. Rev. Lett. **83**, 572-575 (1999).
40. *$d_c = 4$ is the upper critical dimension for the Bak-Sneppen model*, S. Boettcher and M. Paczuski, Phys. Rev. Lett. **84**, 2267-2270 (2000).
41. *Self-Organized Networks of Competing Boolean Agents*, M. Paczuski, K.E. Bassler, and A. Corral, Phys. Rev. Lett. **84**, 3185-3188 (2000).

42. *Theoretical Results for Sandpile Models of Self-Organized Criticality with Multiple Topplings*, M. Paczuski and K.E. Bassler, Phys. Rev. E **62**, 5347-5352 (2000).
43. *Spatial competition and price formation*, K. Nagel, M. Shubik, M. Paczuski, and P. Bak, Physica A **287**, 546-562 (2000).
44. *Self-Organized Criticality and Universality in a Nonconservative Earthquake Model*, S. Lise and M. Paczuski, Phys. Rev. E **63**, art. no. 036111 (2001).
45. *Solitons in the One-dimensional Forest Fire Model*, P. Bak, K. Chen, and M. Paczuski, Phys. Rev. Lett. **86**, 2475-2477 (2001).
46. *Scaling in a Nonconservative Earthquake Model of Self-Organised Criticality*, S. Lise, and M. Paczuski, Phys. Rev. E **64**, art. no. 046111 (2001).
47. *Cellular Model of Superconducting Vortex Dynamics*, K.E. Bassler and M. Paczuski, "Complexity from Microscopic to Macroscopic Scales: Coherence and Large Deviations", ed. A. Skjeltorp (Kluwer Academic Publishers, Dordrecht, 2001).
48. *A Simple Model for Plastic Dynamics of a Disordered Flux Line Lattice*, K.E. Bassler, M. Paczuski, E. Altshuler, Phys. Rev. B **64**, art. no. 224517 (2001).
49. *Large Scale Structures, Symmetry, and Universality in Sandpiles*, **D. Hughes** and M. Paczuski, Phys. Rev. Lett. **88**, art. no. 054302 (2002).
50. *Nonconservative Earthquake Model of Self-Organized Criticality on a Random Graph*, S. Lise and M. Paczuski, Phys. Rev. Lett. **88**, art. no. 228301 (2002).
51. *$1/f^\alpha$ Noise from Correlations Between Avalanches in Self-Organized Criticality*, **J. Davidsen** and M. Paczuski, Phys. Rev. E **66**, art. no. 050101 (2002).
52. *Solar Flares as Cascades of Reconnecting Magnetic Loops*, **D. Hughes**, M. Paczuski, R.O. Dendy, P. Helander, K.G. McClements, Phys. Rev. Lett. **90**, art. no. 131101 (2003).
53. *Scaling in Fracture and Refreezing of Sea Ice*, R. Korsnes, S.R. Souza, R. Donangelo, A. Hansen, M. Paczuski, and K. Sneppen, Physica A **335**, 291-296 (2004).
54. *Scale Free Networks of Earthquakes and Aftershocks*, M. Baiesi and M. Paczuski, Phys. Rev. E **69**, art. no. 066106 (2004).
55. *A Heavenly Example of Scale Free Networks and Self-Organized Criticality*, M. Paczuski and **D. Hughes**, Physica A **342**, 158-163 (2004). For the 8th Latin American Workshop on Nonlinear Phenomena.
56. *Scale Free Magnetic Networks: Comparing Observational Data with a Self-Organizing Model of the Coronal Field*, **D. Hughes** and M. Paczuski, astro-ph/0309230, submitted to the Astrophysical Journal.
57. *Luminous Matter May Arise from a Turbulent Plasma State of the Early Universe*, P. Bak (deceased) and M. Paczuski, Physica A **348**, 277-280 (2005).
58. *Complex networks of earthquakes and aftershocks*, M. Baiesi and M. Paczuski, Nonlin. Proc. Geophys. **12**, 1-11 (2005). For NPG special issue "Seismicity Pattern Dynamics", European Geosciences Union, Nice, 2004.
59. *Analysis of the Spatial Distribution Between Successive Earthquakes*, J. Davidsen and M. Paczuski, Phys. Rev. Lett. **94**, art. no. 048501 (2005).
60. *Scaling Law for Earthquake Hazard After a Main Shock*, S. Lise, M. Paczuski and A. Stella, submitted, web publication <http://xxx.lanl.gov/abs/cond-mat/0403037>.
61. *A dynamical model of a Grid market*. U. Harder, P.G. Harrison, M. Paczuski, and **T. Shah**. Technical report, October 2004. Archive no. cs.MA/0410005. This is an

improved version of the Mascots 2004 poster: <http://aesop.doc.ic.ac.uk/pubs/grid-mascot-2004>. [EPSRC] This work provided the basis for a funded EPSRC grant "Market Models of Grid Computing".

62. *Inter-occurrence Times in the Bak-Tang-Wiesenfeld Sandpile Model: A Comparison with the Observed Statistics of Solar Flares*, M. Paczuski, S. Boettcher, and M. Baiesi, Phys. Rev. Lett. **95**, 181102 (2005).

63. *Networks as Renormalized Models for Emergent Behavior in Physical Systems*, M. Paczuski, physics/0502028. For COMPLEXITY, METASTABILITY AND NONEXTENSIVITY (World Scientific, London, 2005). This was "paper of the month" (02/05) at the Econophysics forum.

64. *Correlated Dynamics of Human Printing Behavior*, U. Harder and M. Paczuski, Physica A, **361**, 329-336 (2006).

65. *Intensity Thresholds and the Statistics of the Temporal Occurrence of Solar Flares*, M. Baiesi, M. Paczuski, and A. L. Stella, Phys. Rev. Lett. **96**, 051103 (2006).

66. *Earthquake Recurrence as a Record Breaking Process*, J. Davidsen, P. Grassberger, and M. Paczuski, Geophysical Res. Lett., **33**, L11304 (2006).

67. *Subgraph Ensembles and Motif Discovery Using a New Heuristic for Graph Isomorphism*, K. Baskerville and M. Paczuski, Phys. Rev. E (in press, Sept. 2006).

68. *Network Analysis of the State Space of Discrete Dynamical Systems*, **A. Shreim**, P. Grassberger, W. Nadler, B. Samuelsson, J. Socolar, and M. Paczuski, cond-mat/0610447 (submitted October, 2006).

69. *Link likelihoods in random networks with fixed and partially fixed degree sequence*, **J. Foster, D. Foster**, P. Grassberger, and M. Paczuski, cond-mat/0610446 (submitted October, 2006).

70. *Co-existence of Self-Organized Criticality and Intermittent Turbulence in the Solar Corona*, V. M. Uritsky, M. Paczuski, J. M. Davila, **S. I. Jones**, astro-ph/0610130 (submitted October, 2006).