

# UPDATE



July 2006

## SANTA FE INSTITUTE

### INSIDE SFI: ON AND OFF THE COWAN CAMPUS

<http://www.santafe.edu/events/update/insidesfi.php>

### SCHUSTER ELECTED PRESIDENT OF THE AUSTRIAN ACADEMY OF SCIENCES

**Peter Schuster** (University of Vienna and SFI External Faculty) has been elected President of the Austrian Academy of Sciences. Congratulations, Peter!  
<http://www.tbi.univie.ac.at/~pks/>

### CARDENAS IN SCIENCE

**Juan Camilo Cardenas** (Universidad de los Andes, Bogota) is one of the authors of "Costly Punishment Across Human Societies," that appears in the June 2006 issue of *Science* (Vol. 312 no. 5781, pp. 1767-1770).  
<http://www.sciencemag.org/cgi/content/full/312/5781/1767>

### TRAUB DONATES ARCHIVES TO CMU

**Joe Traub** (Columbia University and SFI External Faculty) has donated 100 boxes of archival material to the Carnegie Mellon University Library. This collection is in the process of being digitized.  
<http://diva.library.cmu.edu/traub/>

### 2006 RESEARCH UNDERGRADS

SFI is hosting six US undergraduate interns and two international undergrads as part of our ten-week summer residential program. They are:

**Peter Gross**, studying math and economics at the University of Arizona; **Jenny Guth** from Smith, interested in dynamical systems; **Stephen Meisburger** comes from Carleton College with the background in CA's and robotics; **Alex Mueller** from Washington University wants to study "persistent inequalities"; **Clara Orbe** from Brown, past member of Carlos Chavez' Mathematical and Theoretical Biology Institute (MTBI), interested in math modeling; and **Amory Schlender** from Reed, studying dynamics of learning.

Our two international students are: **Carja Oana** from Cuza University in Romania, She will be working with **Tanmoy Bhattacharya** and **Bette Korber**; and **Chao Pang** from Peking University; he will likely be working with **Chen Hou**.

For most of the first week the REU's will be attending morning sessions of the CSSS and spending afternoons at SFI determining their projects and mentors.

<http://www.santafe.edu/education/reu/2006/roster.php>

### JULY PUBLIC LECTURE

The Santa Fe Institute will present a Public Lecture on Wednesday, **July 12, 2006**, at 7:30 pm at the James A. Little Theater.

The lecture, entitled "The Mother of Mass Extinctions: How Life on Earth Nearly Ended 250 Million Years Ago," will be presented by **Douglas Erwin**, Senior Scientist, National Museum of Natural History, Smithsonian Institution and Professor, Santa Fe Institute, with **David Krakauer**, Professor, Santa Fe Institute.

During the greatest biodiversity crisis in the history of life some 250 million years ago, over 90% of all the species in the oceans died off in just a few hundred thousand years. Douglas Erwin, author of the new book *Extinction: How Life on Earth Nearly Ended 250 Million Years Ago* discusses his research in China, South Africa, and the western US in search of the causes and consequences of this great extinction.

July 2006

## BUSINESS NETWORK NEWS

<http://www.santafe.edu/events/update/businessnetwork.php>

### SFI HOSTS BUSINESS NETWORK MEMBERS

SFI President **Geoffrey West** and **Shannon Larsen** hosted Business Network attendees of the 2006 Complex Systems Summer School in Santa Fe on June 22. Ten Business Network members attended the four-week CSSS and presented their final projects on June 30.

Approximately 40 Business Network members and guests attended the Business Network Topical Meeting entitled, "Scaling and Growth of Complex Networks" in Seattle on June 28. The meeting, co-hosted by Boeing, featured speakers **Geoffrey West** (SFI), **Stephanie Forrest** (SFI and University of New Mexico), **Raissa D'Souza** (University California-Davis), **Melanie Moses** (University of New Mexico), and **Norman Johnson** (Los Alamos National Laboratory).

## NOTES FROM THE INTERNATIONAL PROGRAM

<http://www.santafe.edu/events/update/international.php>

### INTERNATIONAL VISITORS

SFI International Visitor **Juan-Camilo Cardenas**, of the Universidad de los Andes, returned to SFI to continue his work on prosocial behavior and discrimination.

**Beatriz Balmaceda**, Executive Director of the Instituto de Sistemas Complejos Valparaiso in Valparaiso, Chile, arrived at SFI for an academic exchange. She will observe the Complex Systems Summer Schools in Santa Fe, New Mexico and Beijing, China.

## PUBLICATIONS

<http://www.santafe.edu/events/update/publications.php>

## WORKING PAPERS

<http://www.santafe.edu/research/publications/working-papers.php>

06-06-022

Structural Stability and Hyperbolicity Violation in High-Dimensional Dynamical Systems

*David J. Albers and J. C. Sprott*

06-06-021

Routes to Chaos in High-Dimensional Dynamical Systems: A Qualitative Numerical Study

*David J. Albers and J. C. Sprott*

06-06-020

q-Generalization of Symmetric Alpha-Stable Distributions: Part II

*Sabir Umarov, Constantino Tsallis, Murray Gell-Mann, and Stanly Steinberg*

06-06-019

q-Generalization of Symmetric Alpha-Stable Distributions: Part I

*Sabir Umarov, Constantino Tsallis, Murray Gell-Mann, and Stanly Steinberg*

06-06-018

Population and Warfare: A Test of the Turchin Model in Puebloan Societies

*Timothy A. Kohler, Sarah Cole, and Stanca Ciupe*

## REFEREED LITERATURE

<http://www.santafe.edu/events/update/publications.php>

**Anderson, K. J., A. P. Allen, J. F. Gillooly, and J. H. Brown.** "Temperature-Dependence of Biomass Accumulation Rates During Secondary Succession." *Ecology Letters* 9(6) (2006) 673-682.

**Buckley, L. B., and J. Roughgarden.** "Climate, Competition, and the Coexistence of Island Lizards." *Functional Ecology* 20(2) (2006): 315-322.

**Buckley, L. B., and J. Roughgarden.** "A Hump-Shaped Density-Area Relationship for Island Lizards." *Oikos* 113(2) (2006): 243-250.

**Farmer, J. D., A. Gerig, F. Lillo, and S. Mike.** "Market Efficiency and the Long-Memory of Supply and Demand: Is Price Impact Variable and Permanent or Fixed and Temporary?" *Quantitative Finance* 6(2) (2006): 107-112.

**Jayadev, A., and S. Bowles.** "Guard Labor." *Journal of Development Economics* 79 (2) (2006): 328-348.

**Sinervot, B., A. Chaine, J. Clobert, R. Calsbeek, L. Hazard, L. Lancaster, A. G. McAdam, S. Alonzo, G. Corrigan, and M. E. Hochberg.** "Self-Recognition,

Color Signals, and Cycles of Greenbeard Mutualism and Altruism." *Proceedings of the National Academy of Sciences of the United States of America* 103(19) (2006): 7372-7377.

**Tsallis, C.** "Occupancy of Phase Space, Extensivity of  $S$ - $q$ , and  $q$ -Generalized Central Limit Theorem." *Physica A—Statistical Mechanics and Its Applications* 365(1) (2006): 7-16.

**Wilkins, J. F.** "Tissue-Specific Reactivation of Gene Expression at an Imprinted Locus." *Journal of Theoretical Biology* 240(2) (2006): 277-287.

**Wolfinger, M. T., S. Will, I. L. Hofacker, R. Backofen, and P. F. Stadler.** "Exploring the Lower Part of Discrete Polymer Model Energy Landscapes." *Europhysics Letters* 74(4) (2006): 726-732.

## LIBRARY ACQUISITIONS

For a list of recent purchases by the SFI library, please see <http://www.santafe.edu/events/update/library.php>

## CALENDAR OF EVENTS

<http://www.santafe.edu/events/calendar.php>

### July 6 - 8, 2006

Workshop — "Degeneracy and Complexity in The Immune System," organized by **Eli Sercarz** (Torrey Pines Institute) and **Alan Perelson** (LANL and SFI). Held at the Santa Fe Institute.

### July 9 - 22, 2006

Educational Program — "Grad Workshop in Computational Social Sciences," organized by **John Miller** (Carnegie Mellon University and SFI) and **Scott Page** (University of Michigan-Ann Arbor). Held at St. John's College.

### July 9 - August 4, 2006

Educational Program — "Complex Systems Summer School - Beijing," Co-directors: **Dr. David P. Feldman** (College of the Atlantic and SFI) and **Dr. Chen Xiaosong** (Institute for Theoretical Physics, CAS). Sponsored by SFI in cooperation with The Institute of Theoretical Physics, and the Graduate School, Chinese Academy of Sciences (CAS). Held at the Institute of Theoretical Physics in Beijing, China.

### July 10 - 18, 2006

Workshop — "Emergence of the First States in Central China," organized by **Henry Wright** (University of Michigan and SFI). Held in Luoyang, China.

### July 12, 2006

Public Lecture — "The Mother of Mass Extinctions: How Life on Earth Nearly Ended 250 Million Years Ago," by **Douglas Erwin** (Smithsonian and SFI) with **David Krakauer** (SFI), organized by **Ginger Richardson** (SFI). Held at the James A. Little Theater.

### July 16 - 23, 2006

Educational Program — "Foundations of Theoretical Medicine," organized by **David Krakauer** (SFI). Held at the Santa Fe Institute.

### July 18, 2006

Business Network Meeting — "Living Computation and Evolvable Software — San Jose," Co-hosted by SFI and Cisco Systems, Inc.

### August 14, 2006

Working Group — "Cosmology and Cognition," organized by **George Gumerman** (SFI). Held at the Santa Fe Institute.

### September 10 - 12, 2006

Workshop — "Probing the Limits," organized by **Doug Erwin** (Smithsonian and SFI). Held at the Santa Fe Institute.

### September 12 - 14, 2006

Public Lecture — Thirteenth Annual Stanislaw Ulam Memorial Lecture Series: "On Plants-From Genes to Genomes to Genetically Modified Foods," by **Nina Fedoroff** (Pennsylvania State University and SFI) organized by **Ginger Richardson**. Held at the James A. Little Theater.

### September 15 - 19, 2006

Working Group — "Global IP Fellows Meeting," organized by **Shannon Larsen** (SFI). Held at the Santa Fe Institute.

### September 28 - October 1, 2006

Working Group — "Unifying Current Theories of Ecology," **Drew Allen** (University of California-Santa Barbara); **Jessica Green**, Organizer (University of California-Merced); **Steve Hubbell**, (University of Georgia and Smithsonian Tropical Research Institute); **Pablo Marquet**, (Catholic University of Chile and former SFI International Fellow). Held at the Santa Fe Institute.

### October 4, 2006

Business Network Meeting — "Complex Adaptive Systems Applications Seminar — London," Co-hosted by SFI and BT.

### November 1 - 2, 2006

Workshop — "ARCS (Adaptive and Resilient Computer Security) Workshop BusNet," organized by **Robert Ghanea-Hercock** (BT) and **Shannon Larsen** (SFI). Held at the Santa Fe Institute.

**November 3 - 5, 2006**

Meeting — “Annual Business Network and Board of Trustees Meeting,” organized by **Bill Miller** (Legg Mason), **Geoffrey West** (SFI), and **Chris Wood** (SFI). Held at the Santa Fe Institute and the Inn at Loretto.

**November 15, 2006**

Public Lecture — “Forecasting Natural Disasters in the Chaotic and Complex Earth,” by **John Rundle** (University of California-Davis) with **Geoffrey West**, organized by **Ginger Richardson**. Held at the James A. Little Theater.

## JULY VISITORS AND ARRIVALS

<http://www.santafe.edu/events/monthlyvisitors.php>

**Christian Althaus** (7/16-30), Theoretical Biology, Utrecht University. Purpose of visit: Graduate Studies.

**Nihat Ay** (7/24-8/25), Mathematical Institute, Friedrich-Alexander University Erlangen-Nuremberg. Purpose of visit: External Faculty.

**Patrick Ball** (7/9-16), CTO & Human Rights Program Director, The Benetech Initiative. Purpose of visit: Research Collaboration.

**Francois Bousquet** (7/11-14) Agricultural Research for Developing Countries (CIRAD). Purpose of visit: Research Collaboration.

**Sam Bowles** (7/1-8/1), Economics, Research Faculty, Santa Fe Institute. Purpose of visit: Resident Faculty.

**Damon Centola** (7/10-21), Sociology, Cornell University. Purpose of visit: Research Collaboration.

**Jung-Kyoo Choi** (7/9-8/1), School of Economics and Trade, Kyungpook National University. Purpose of visit: External Faculty.

**Shelley Copley** (7/30-8/12), Molecular, Cellular, and Developmental Biology, University of Colorado. Purpose of visit: Research Collaboration.

**Rob de Boer** (7/5-8/4), Theoretical Biology / SFI External Faculty, Utrecht University. Purpose of visit: Research Collaboration.

**Mark Dowling** (7/6-22), Physics, The University of Queensland. Purpose of visit: Research Collaboration.

**Doug Erwin** (7/6-14), Paleontology, National Museum of Natural History, Smithsonian Institution. Purpose of visit: Science Board.

**Nina Fedoroff** (7/1-31), Biology/Life Sciences Consortium / SFI External Faculty, Pennsylvania State University. Purpose of visit: External Faculty.

**Austin Gerig** (7/6-7/5/07), Loomis Laboratory for Physics, University of Illinois at Urbana-Champaign. Purpose of visit: Graduate Studies.

**Phil Hodgkin** (7/6-22), Immunology, Walter and Eliza Hall Institute for Medical Research. Purpose of visit: Research Collaboration.

**Marco Janssen** (7/10-14), School of Human Evolution and Social Change and Department of Computer Science and Engineering, Indiana University. Purpose of visit: Research Collaboration.

**Erica Jen** (7/4-8/8), Faculty, Santa Fe Institute. Purpose of visit: External Faculty.

**Adlar Kim** (7/1-12/31), Computer Science, Massachusetts Institute of Technology. Purpose of visit: Graduate Studies.

**John Miller** (7/1-31), Social and Decision Sciences, Carnegie Mellon University. Purpose of visit: Research Collaboration.

**Suresh Naidu** (7/1-31), Department of Economics, University of California-Berkeley. Purpose of visit: Graduate Studies.

**Scott Page** (7/16-24), Center for the Study of Complex Systems (CSCS), University of Michigan-Ann Arbor. Purpose of visit: External Faculty.

**Boris Schmid** (7/16-30), Theoretical Immunology, Utrecht University. Purpose of visit: Graduate Studies.

**Paul Seabright** (7/7-23), Department of Economics, Universite de Toulouse. Purpose of visit: Research Collaboration.

**Rajiv Sethi** (7/1-31), Department of Economics, Columbia University. Purpose of visit: Research Collaboration.

**Georgiy Starostin** (7/15-9/3), Center of Comparative Linguistics, Russian State University. Purpose of visit: Research Collaboration.

**Libby Wood** (7/3-8/1), Professor of Political Science, Yale University. Purpose of visit: Resident Faculty.

**Neda Zamani** (7/24-7/19/07), Information Technologies, University of Sydney. Purpose of visit: Graduate Studies.