

# UPDATE



September 2006

SANTA FE INSTITUTE

## INSIDE SFI: ON AND OFF THE COWAN CAMPUS

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

### GOVERNOR RICHARDSON APPOINTS JIM RUTT

New Mexico Governor Bill Richardson appointed **Jim Rutt** (Vice Chair, SFI Board of Trustees) to the New Mexico State Investment Council.

Jim has worked as a researcher in residence at the Institute, where he studied the application of complexity science to financial markets, social simulations, and artificial intelligence.

He is the former chief executive officer of Network Solutions Inc., which administers domain name spaces on the Internet. He also co-founded Business Research Corp., which develops online information products for the investment community.

Jim received his bachelor's degree in management from the Massachusetts Institute of Technology.

### McCARTHY PLAY IN NEW YORK

"The Sunset Limited," a play by **Cormac McCarthy**, is coming to 59E59 Theaters in New York October 24 through November 19. For more information, please see <http://www.theatermania.com/content/news.cfm/story/8748>

### BROWN ELECTED TO ASM

**James Brown** (University of New Mexico Professor and SFI External Faculty and Science Steering Committee member) was recently elected Honorary

Member, the highest honor conferred by the ASM (American Society of Mammalogists). For more information, please see <http://www.unm.edu/%7Emarket/cgi-bin/archives/001339.html#more>

### WILDFIRE EVACUATION SEMINAR HELD

Together with the City of Santa Fe and the RedfishGroup, SFI hosted a Seminar entitled "Computational Methods for Wildfire Evacuation Modeling and Planning." The talk was introduced with a local project between the City of Santa Fe and the RedfishGroup modeling traffic on the Santa Fe road network and wildfire dynamics on the local topology. City officials held an informal breakout session following the talk to discuss potential research directions in evacuation dynamics.

### AUGUST COLLOQUIA

SFI was fortunate to have three colloquia in August. **Paul Ormerod** (Volterra Consulting) presented a talk entitled "Modeling Socio Economic Phenomena with Low Cognition." **Dr. Roger Guillemin** (Nobel Laureate, Distinguished Professor, The Salk Institute) gave a talk on "The Origins of Neuroendocrinology - And Where We Stand Today," and **Dr. Charles Stevens** (Molecular Neurobiology Lab, The Salk Institute, and SFI External Faculty member) spoke on "Scaling Laws and the Scalable Architecture of the Vertebrate Brain."

### KOHLER AWARDED NSF GRANT

**Timothy A. Kohler** (Washington State University Regents' Professor and SFI External Faculty) along with colleagues from WSU and the University of Washington have been awarded a five-year IGERT grant (Integrative Graduate Education and Research Traineeship Program) for a program in evolutionary modeling.

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## ULAM LECTURES — SEPTEMBER 12, 13, & 14

**Nina Fedoroff** (Evan Pugh Professor, Willaman Professor of Life Sciences, Pennsylvania State University and SFI External Professor) has recently been in residence at SFI pursuing her research. She will be giving the Ulam lectures this year, a continuing lecture series dedicated to the memory of the great mathematician **Stanislaw Ulam** of the now legendary Polish School of Mathematics. Upon his passing in 1984, Françoise, his wife, donated his entire book collection to the SFI Library. Françoise lives in Santa Fe and usually attends the lectures. They will be held on September 12, 13, and 14, at the James A. Little Theater beginning at 7:30 pm Tuesday, September 12, 2006.

### Tuesday, September 12, 2006

*Lecture I: How Plants See, Feel, and Smell: The Perceptual Apparatus of the Plant Kingdom*

Plants sense light, touch, gravity, humidity, and the myriad chemicals they encounter in the air and soil. The first lecture describes how plants perceive these signals and respond by moving and changing the way they grow, progressing from the whole plant down to its cells and molecules.

### Wednesday, September 13, 2006

*Lecture II: The Jumping Genome: Changing Ideas about Heredity and Evolution*

Genetics traces its origins to monk Gregor Mendel's experiments on common pea plants. The 20th century witnessed the explosive growth of genetics from the naming of genes to the identification of DNA as the stuff of heredity by Nobel Laureates Watson and Crick to the sequencing of whole genomes. The second lecture explores the revolutions in ideas of genes and chromosomes from beads on a string to the jumping corn genes of Nobel Laureate Barbara McClintock to contemporary ideas of a dynamic genome.

### Thursday, September 14, 2006

*Lecture III: Genetically Modified Foods: Monsters or Miracles?*

We're bombarded with conflicting claims about genetically modified (GM) foods. Some claim that they will provide the food to sustain humanity on an increasingly crowded planet. Others claim

they're toxic to people and the environment. What are we to believe? The third lecture examines the history of food plants, describes the differences between previous and present methods of modifying them, and addresses common food safety and biodiversity concerns about GM crops and foods.

## BUSINESS NETWORK NEWS

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

### BUSINESS NETWORK WELCOMES DELOITTE TOUCHE TOHMATSU

The Business Network welcomes new member **Deloitte Touche Tohmatsu**. Deloitte Touche Tohmatsu is an organization of member firms around the world devoted to excellence in providing professional services and advice, focused on client service through a global strategy executed locally in nearly 150 countries. **Philip Moyer** and **Brian Corotis** are the contact people for the network and are based at the Global Security Office in Pennsylvania.

### BUSINESS NETWORK WELCOMES PSILOS GROUP MANAGERS LLC

The Business Network welcomes new member, **Psilos Group Managers LLC**. With offices in New York, San Francisco, and Santa Fe, Psilos Group has been a successful healthcare private equity firm since its founding in 1998. With over \$275 million currently under management, Psilos leverages its team's knowledge and operational experience to identify industry-transforming healthcare and medical technology investment opportunities that will create viable, sustainable and highly valuable businesses. **Dr. Albert Waxman** is the Network representative for Psillos and is based in Santa Fe.

### SFI HOSTS BUSINESS NETWORK RESEARCHERS

During the month of August, SFI hosted several Business Network researchers including, **Dave Garvey**, Boeing; **Charles Macal**, Argonne National Laboratory; and **Juan Perez-Mercader**, Amena.

## LARSEN AND AXTELL VISIT MITRE

**Shannon Larsen**, Director of the SFI Business Network, and **Rob Axtell**, The Brookings Institution and SFI External Faculty, recently visited D.C.-based Network Member MITRE. The meeting addressed a wide variety of Network-related issues, from research themes and topical meetings to the development an integrated web-based Business Network community.

## NOTES FROM THE INTERNATIONAL PROGRAM

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

## IP FELLOW VEDRES RETURNS TO SFI

International Fellow **Balazs Vedres**, of the Department of Sociology and Social Anthropology, Central European University, returned to SFI to continue his research on exploring methods to analyze the dynamics of network cohesion, to develop an approach to classify sequences in the lives of cohesive groups (such as mergers, split-ups, emergence and dissolution). Balazs uses a dataset of the board interlock network of the 2000 largest Hungarian firms from 1987 to 2001 to find links between business group sequences and political intervention.

## PUBLICATIONS

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

## WORKING PAPERS

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

**06-08-030**

Survival of Species in Patchy Landscapes: Percolation in Space and Time

*Beáta Oborny, György Szabó, and Géza Meszéna*

**06-08-029**

Energy Flow and the Organization of Life

*Harold Morowitz and D. Eric Smith*

**06-08-028**

A Unifying Framework for Complexity Measures of Finite Systems

*Nihat Ay, Eckehard Olbrich, Nils Bertschinger, and Jürgen Jost*

**06-08-027**

Support Sets of Distributions with Given Interaction Structure

*Thomas Kahle and Nihat Ay*

## REFEREED LITERATURE

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

**Erwin, D. H., and E. H. Davidson.** "Response to Comment on 'Gene Regulatory Networks and the Evolution of Animal Body Plans.'" *Science* 313(5788) (2006): 2.

**Gastner, M. T., and M. E. J. Newman.** "Optimal Design of Spatial Distribution Networks." *Physical Review E* 7401(1 pt. 2) (2006): 171-176.

**Schultz, A. K., M. Zhang, T. Leitner, C. Kuiken, B. Korber, B. Morgenstern, and M. Stanke.** "A Jumping Profile Hidden Markov Model and Applications to Recombination Sites in HIV and HCV Genomes." *BMC Bioinformatics* 7 (2006):10-24

## 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>

**August 14, 2006**

Working Group — "Cognition and Cosmology: New Models for Understanding Mesoamerican Southwestern and Southeastern Relations and Culture Change during the Prehistoric Era," 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.

**October 19, 2006**

Business Network Meeting — “Financial Risk — New York,” Co-organized by SFI, Michael Mauboussin (Legg Mason), and Eric Beinhocker (McKinsey Global Institute)

**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.

## SEPTEMBER VISITORS AND ARRIVALS

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

**Adrian Bell** (9/4-8), University of California--Davis. Purpose of visit: Graduate Studies. SFI host: Charles Efferson.

**Robert Buelteman** (9/4-29), Photo/ Art, The Buelteman Studio. Purpose of visit: Visiting Researcher. SFI host: Chris Wood.

**Miguel Fuentes** (9/1-23), Fisica Estadistica, Centro Atómico Bariloche. Purpose of visit: International Fellow. SFI host: Shannon Larsen.

**Bailin Hao** (9/2-11/1), Department of Physics, Fudan University. Purpose of visit: International Visitor. SFI host: Shannon Larsen.

**Daniel Hruschka** (9/18/06-9/17/07), Anthropology, Emory University. Purpose of visit: Postdoctoral Research. SFI host: Chris Wood.

**Ole Peters** (9/5-18), Postdoctoral Fellow, Santa Fe Institute. Purpose of visit: Postdoctoral Research. SFI host: Chris Wood.

**David Sherrington** (9/5-22), Department of Physics, University of Oxford and SFI External Faculty. Purpose of visit: External Faculty. SFI host: Chris Wood.

**David Storch** (9/12-10/17), Center for Theoretical Study, Charles University. Purpose of visit: International Visitor. SFI host: Shannon Larsen.

**Henri Waelbroeck** (9/13-21), Research, Pipeline Financial, Inc. Purpose of visit: Research Collaboration. SFI host: Doayne Farmer.

**Hao Wang** (9/2-11/1), Department of Physics, Fudan University. Purpose of visit: Research Collaboration. SFI host: Bailin Hao.