

# UPDATE



October 2006

## SANTA FE INSTITUTE

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

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

### SCHUSTER PRESENTS SEMINAR TO THE POPE

**Peter Schuster** (SFI External Faculty, President Austrian Academy of Sciences) was the first presenter in the annual weekend seminar held by Pope Benedict XVI (formerly Professor Joseph Ratzinger) for his old doctoral students. This year's seminar was on evolution.

To learn more, please see <http://www.nytimes.com/2006/09/02/world/europe/02vatican.html?pagewanted=2> (*New York Times* log-in required)

### McCARTHY'S TENTH NOVEL

**Cormac McCarthy's** tenth novel entitled *The Road* is scheduled for release September 26, 2006. Quoting from the September 4, 2006, issue of *Newsweek*, McCarthy sends a nameless father and son through the ruins of America after an apocalypse—with only blankets, scavenged food and a gun with two bullets."

### WEST IN KYOTO

In September **Geoffrey West**, SFI President and Distinguished Professor, was a keynote speaker at the Science and Technology in Society (STS) Forum in Kyoto, Japan, and also presented a talk at the Plenary Session of the Kyoto Open Symposium along with Dr. George Atkinson, Science and Technology Advisor to the U.S. Secretary of State.

### EVOLUTION OF HUMAN LANGUAGES PROJECT (EHL)

The Autumn 2006 edition of *American Scholar* features an article entitled, "The Man Who Loved Languages," by Richard B. Woodward. The article commemorates the many contributions of **Sergei Starostin**, SFI External Professor and EHL project leader, to the study of historical linguistics. The late Dr. Starostin passed away in 2005. The article features interviews with **Murray Gell-Mann** and several other members of the Evolution of Human Language project.

### 2006 MACARTHUR FELLOW

SFI External Professor, **Lisa Curran**, Professor, School of Forestry and Environmental Sciences, Yale University, has been awarded a 2006 MacArthur Foundation Fellowship. The fellowship award describes Lisa as a "Tropical Forester combining expertise in ecological processes with insights into the realities of forest communities to address deforestation and its environmental consequences in endangered areas around the world."

MacArthur Fellowships come without stipulations or reporting requirements, offering the opportunity for Fellows to accelerate their current activities or take their work in new directions. Fellows are selected for their creativity, originality, and potential to be significant contributors in their fields. Each of the 25 MacArthur Fellows received a phone call from the Foundation informing them that they will be given \$500,000 with no strings attached.

Congratulations, Lisa.

For more information on the 2006 MacArthur Fellows visit [http://www.macfound.org/site/c.lkLXJ8MQKrH/b.1074781/k.D7EC/In\\_Focus.htm](http://www.macfound.org/site/c.lkLXJ8MQKrH/b.1074781/k.D7EC/In_Focus.htm)

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## BUSINESS NETWORK NEWS

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

### OCTOBER AND NOVEMBER BUSINESS NETWORK EVENTS

Detailed information regarding the speakers and agenda of this year's Annual Business Network Meeting as well as the upcoming Topical Meetings is now available online. The latest information on all SFI workshops and meetings, including Business Network events, can be found on the SFI Wiki: [http://www.santafe.edu/events/workshops/index.php/Main\\_Page](http://www.santafe.edu/events/workshops/index.php/Main_Page).

### BUSINESS NETWORK WELCOMES PREDICTION COMPANY LLC

The Business Network extends a warm welcome to **Prediction Company**: <http://www.predict.com>. Founded in 1991, Prediction Company became a wholly owned subsidiary of UBS AG in November 2005. Using world-class technology and science, Prediction Company both builds fully automated trading systems and accurate, consistent predictive models of markets including the behavior of financial instruments traded in those markets. **Karen E. Lawrence**, based in Santa Fe, is the primary contact for Prediction.

## NOTES FROM THE INTERNATIONAL PROGRAM

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

### INTERNATIONAL FELLOWS GLOBAL MEETING

SFI hosted the first International Fellows and Visitors Global Meeting from September 15 to 19. Seventeen former International Fellows and International Visitors returned to the Institute to share their latest research, develop new collaborations, and learn about initiatives in complexity science around the world. The participants enjoyed presentations by faculty and special guests, and also had a chance to explore Northern New Mexico during a weekend trip to Star Hill Inn, a private astronomy retreat in the foothills of the Rocky Mountains.

### INTERNATIONAL FELLOWS VISIT SFI

At SFI Professor **Hao Bailin**, former SFI International Fellow and Head of the T-Life Research Center at Fudan University in Shanghai, continued his work on DNA and protein sequences. Professor HAO also presented a seminar to the SFI community entitled, "Bacteria Phylogeny Meets Taxonomy: The Composition Vector Approach without Sequence Alignment."

SFI International Fellow **Miguel Fuentes**, of the Centro Atomico Bariloche, returned to SFI to further his research with **David Krakauer**. Miguel will join SFI as a full-time Postdoctoral Fellow in November 2006.

Former SFI International Fellow **David Storch**, Research Fellow and Vice-Director, Center for Theoretical Study, and Assistant Professor, Department of Ecology, Charles University, Prague, Czech Republic, continued his work on biodiversity patterns while visiting SFI.

## PUBLICATIONS

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

## WORKING PAPERS

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

**06-09-034**

Mechanical vs. Informational Components of Price Impact

*J. Doyne Farmer and Neda Zamani*

**06-09-033**

Synthetic Protocell Biology: From Reproduction to Computation

*Ricard V. Solé, Andreea Munteanu, Carlos Rodriquez-Caso, and Javier Macia*

**06-09-032**

Generic Darwinian Selection in Catalytic Protocell Assemblies

*Andreea Munteanu, Camille Stephen-Otto Attolini, Steen Rasmussen, Hans Ziock, and Ricard V. Solé*

**06-09-031**

Computation in Finitary Quantum Processes

*Karoline Wiesner and James P. Crutchfield*

## REFEREED LITERATURE

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

**Albers, D. J., and J. C. Sprott.** "Structural Stability and Hyperbolicity Violation in High-Dimensional Dynamical Systems." *Nonlinearity* 19(8) (2006): 1801-1847.

**Bernui, A., C. Tsallis, and T. Villela.** "Temperature Fluctuations of the Cosmic Microwave Background Radiation: A Case of Non-Extensivity?" *Physics Letters A* 356(6) (2006): 426-430.

**Corominas, B., and R. V. Sole.** "Network Topology and Self-Consistency in Language Games." *Journal of Theoretical Biology* 241(2) (2006): 438-441.

**Kothe, D. L., Y. Y. Li, J. M. Decker, F. Bibollet-Ruche, K. P. Zammit, M. G. Salazar, Y. L. Chen, Z. P. Weng, E. A. Weaver, F. Gao, B. F. Haynes, G. M. Shaw, B. T. M. Korber, and B. H. Hahn.** "Ancestral and Consensus Envelope Immunogens for HIV-1 Subtype C." *Virology* 352(2) (2006): 438-449.

**McTague, C. S., and J. P. Crutchfield.** "Automated Pattern Detection - An Algorithm for Constructing Optimally Synchronizing Multi-regular Language Filters." *Theoretical Computer Science* 359(1-3) (2006): 306-328.

**Mihaila, B., J. F. Dawson, and F. Cooper.** "Forward Cone Quantization of the Dirac Field in 'Longitudinal Boost-Invariant' Coordinates with Cylindrical Symmetry." *Physical Review D* 7403(3) (2006).

**Moyano, L. G., A. P. Majtey, and C. Tsallis.** "Weak Chaos and Metastability in a Symplectic System of Many Long-Range-Coupled Standard Maps." *European Physical Journal B* 52 (4) (2006): 493-500.

**Peters, O., and K. Christensen.** "Rain Viewed as Relaxational Events." *Journal of Hydrology* 328(1-2) (2006): 46-55.

**Solé, R. V., and S. Valverde.** "Are Network Motifs the Spandrels of Cellular Complexity?" *Trends in Ecology & Evolution* 21(8) (2006): 419-422.

**Spencer, S. L., R. A. Gerety, K. J. Pienta, and S. Forrest.** "Modeling Somatic Evolution in Tumorigenesis." *Plos Computational Biology* 2(8) (2006): 939-947.

**Wood, E. J.** "Variation in Sexual Violence During War." *Politics & Society* 34(3) (2006): 307-341.

## 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>

### 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).

### October 31 - November 2, 2006

Workshop - “Modern Malware: Underlying Causes and Potential Solutions”, organized by **Matt Williamson** (Sana Security, Inc.), **Esther Dyson** (CNET Network and SFI), and **Stephanie Forrest** (University of New Mexico and SFI). Held at the Santa Fe 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.

## OCTOBER VISITORS AND ARRIVALS

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

**Lisa Curran** (10/18-29), School of Forestry & Environmental Science, Yale University. Purpose of visit: Research Collaboration. SFI host: Steve Lansing.

**Robert Ghanea-Hercock** (10/30-11/2), Advanced Communication Laboratories, BT. Purpose of visit: Business Network. SFI host: Shannon Larsen.

**Matt Hahn** (10/17-21), Department of Biology, Indiana University. Purpose of visit: Research Collaboration. SFI host: Jon Wilkins.

**J. Stephen Lansing** (10/6-12/31), Department of Anthropology, University of Arizona. Purpose of visit: Resident Faculty. SFI host: Chris Wood.

**Hong Li** (10/29-11/11), Intel Corporation. Purpose of visit: Business Network. SFI host: Shannon Larsen.

**Regina Monaco** (10/25-11/25), NASA. Purpose of visit: Visiting Research. SFI host: Ginger Richardson.

**Stefan Thurner** (10/16-27), Complex Systems Research Group, HNO, Medical University of Vienna. Purpose of visit: Research Collaboration. SFI host: Jon Wilkins.

**Frederik Wiegel** (10/30-11/25), University of Amsterdam. Purpose of visit: Research Collaboration. SFI host: Alan Perelson.