

Esther Adi-Japha is a multidisciplinary researcher at the school of Education, Bar-Ilan University, Israel; member of the Gonda Center for Brain Research and the Baker Center for the Study of Infants and Toddlers with Developmental Disorders. Adi-Japha's first degree (B.Sc) was in physics and math (received 1991); second degree (M.Sc) in theoretical physics (received, 1993); third degree (Ph.D) was in Neural Computation, on drawing movements and their relation to the development of representation in drawings of young children (received, 1998). Post doctorate research (2 years) was conducted at the department of Experimental Psychology, Bristol University, UK, on the differentiation between writing and drawing systems from early childhood (4-year-olds) to adulthood. Her current research combines quantitative as well as qualitative aspects, including mathematical modeling, and focuses on developmental aspects of drawing, writing and motor learning. A second line of research focuses on the effect that child care may have on child development.

Much of Adi-Japha's research work uses the methodology of secondary analysis. This approach enables the researcher to focus on modeling developmental phenomena relying on high quality data sets previously collected. Focusing on the modeling of the data enables the researcher to go beyond the accepted models and methods of analysis, enriching the field of study.

Examples of secondary analysis:

* E. Adi-Japha, & P. S. Klein (2008). Relationship between parenting quality and cognitive performance of children experiencing varying amounts of childcare. *Child Development*, in press.

* E. Adi-Japha, A. Karni, A. Parnes, I. Loewenschuss, & E. Vakil (2008). A shift in task routines during the learning of a motor skill: group averaged data may mask critical phases in the individuals' acquisition of skilled performance. *Journal of Experimental Psychology: Learning memory and Cognition*, 34, 1544-1551.

Plamen Ch. Ivanov received a M.S. degree in Theoretical Physics/Condensed Matter Physics from Sofia University in 1988, a Ph.D. in Biophysics from Boston University in 1998, and a D.Sc. from the Bulgarian Academy of Sciences in 2007. He is currently a Research Associate Professor at the Physics Department of Boston University, a Lecturer at Harvard Medical School, Brigham and Women's Hospital, and a Professor at the Institute of Solid State Physics, Bulgarian Academy of Sciences.

Dr. Ivanov's research interests include methods of analysis and modeling of integrated biological and physiological systems and networks; multi-scale dynamical properties emerging from cellular level interactions; mechanisms of neural regulation; stochastic processes and phase transitions. He has 93 publications, including 5 book chapters, with above 3000 citations. He serves as a regular referee for 25 scientific journals, including *Physical Review Letters* and the *Proceedings of the National Academy of Sciences of USA (PNAS)*. Dr. Ivanov

has served on the editorial board of Fluctuation and Noise Letters (FNL) in the period 2000-2002, and is currently a Co- Editor of the Journal of Biological Physics (JOBP) and of Europhysics Letters (EPL). He is one of the nine founders of PhysioNet, a Research Resource for Complex Biomedical Signals (www.physionet.org). Dr. Ivanov was the initiator of the new sub-field "Physics in Physiology" at the American Physical Society March Meeting in Montreal 2004, which has since become part of the classification of the American Physical Society.

Fredrik Liljeros (b. 1970), Associate professor at the department of Sociology at Stockholm University, Stockholm University 106 91 Stockholm, Sweden. E-mail: liljeros@sociology.su.se,

URL: <http://www.sociology.su.se/home/Liljeros/index.html>.

Degrees from Stockholm University, (BA, 1994) and (PhD 2001).

Teaching Position at Stockholm University (2001). Post. Doc. at Swedish Institute for infectious disease control (Nov 2001- Nov 2003) Researcher at department of Sociology at Stockholm University (Nov 2003-Dec 2006). Associate professor at the department of Sociology at Stockholm University (Jan 2007-). Research Interests/Specializations: Social networks and Mathematical and computational sociology.

Representative list of publications:

(1) F. Liljeros, C. Edling, L.A.N. Amaral, H. E. Stanley, and Y. Åberg, (2001) "The Web of Human Sexual Contacts" *Nature* 411 (21) June 908-909

(2) Chen Y., G. Paul, S. Havlin, F. Liljeros and H. Eugene Stanley. (2008) "Finding a Better Immunization Strategy." *Physical Review Letters* 101:058701

(3) Liljeros, F., J. Giesecke, and P. Holme. (2007) "The contact network of inpatients in a regional healthcare system. A longitudinal case study." *Mathematical Population Studies* 14:269-284

(4) B.F. Blasio, Å Svensson, F. Liljeros (2007) " Preferential attachment in sexual networks." *Proc Natl Acad Sci U S A* 104(26): 10762-7

Rosario Nunzio Mantegna received a M.S. degree in Condensed Matter Physics from Palermo University in 1984, a Ph.D. in Physics from Palermo University in 1990. He is currently a Professor of Applied Physics at the Physics and

Technology Department of Palermo University where he coordinates the research of the Observatory of Complex Systems.

Dr. Mantegna is one of the pioneers in the field of econophysics. He started to work in the area of the analysis and modelling of social and economic systems with tools and concepts of statistical physics as early as in 1990. Since then he has been a key player in the selection of the scientific problems to be tackled by the econophysics community and a continuous presence in the key events that have developed the econophysics community. He has published the first paper on econophysics in a physics journal in 1991. He has co-authored, together with Gene Stanley, the first paper appeared in Nature on high frequency dynamics of a financial market. He organized one of the first world congresses on econophysics: The International Workshop on Econophysics and Statistical Finance held at Palermo University, Palermo, Italy, September 28-30, 1998. Since 1999 he has been a member of the International Scientific Committee of the Applications of Physics in Financial Analysis (APFA) conference series. He was also the co-director of the first International School on Econophysics, The Mathematical Modeling of Financial Markets and Econophysics, Siena 17-23 March 2000, Italy. Just after Mantegna got the tenured position as Associate professor of physics at Palermo University in 1999 he funded the Observatory of Complex Systems, a research group of the Dipartimento di Fisica e Tecnologie Relative and of the research Palermo Unit of CNR-INFN.

Salvatore Micciché graduated in Physics at the Università di Pisa (Italy) in March 1995 and got a PhD in General Relativity at Loughborough University (UK) in December 1999. He held various post doc positions at the University of Palermo up to the end of 2004. Since January 2005 he is an Assistant Professor of Applied Physics at the University of Palermo, Department of Physics and Related Technologies.

He is actually involved in various research activities aimed at the application of methodologies and concepts of statistical physics to complex systems of economic, social and biological nature. Specifically, the main research themes include: Econophysics: for the aspects that regard the empirical and theoretical modeling of volatility; Bioinformatics for the aspects that regard (i) the statistical characterization of non coding regions of viral and bacterial genomes and (ii) the statistical assessment of the Gene Ontology terms significantly involved in complex pathologies such as autism; Stochastic Processes: for the aspects that regard the characterization of Markovian processes with long memory.

Andrzej Nowak

Andrzej Nowak is a professor of psychology at the Department of Psychology, University of Warsaw, where he directs the Center for Complex Systems at the Institute for Social Studies, and also at the Warsaw School for Social Psychology where he is the director of the Institute of Social Psychology of Informatics and Communications and also Associate Professor of Psychology, Florida Atlantic University. He has been a Visiting Scholar at University of North Carolina, Ohio

State University, Netherland's Institute for Advanced Studies, and Vienna's Center for Advanced Studies in the Social Sciences. His primary focus is on the dynamical approach to social psychology. He has done research concerning social influence, social transitions, social dilemmas, self and emotions. His current research includes the use of coupled dynamical systems to simulate the emergence of personality through social coordination, attractor neural networks to model interpersonal and group dynamics, and cellular automata and autocatalytic processes to simulate societal change. He also works on modeling the dynamics of the self-structure. He publishes in both social and psychological journals (e.g. *Psychological Review*), as well as in physical journals (*Physical review Letters*, *Physical Review A*, *E*).

Selected publications:

Nowak, A. & Vallacher, R. R. (2005). Information and influence in the construction of shared reality. *IEEE: Intelligent Systems*, 20, 90-93

Nowak, A. & Vallacher, R. R. (2003). Computational models of social processes. In L. Nadel (Ed.), *Encyclopedia of Cognitive Science* (Vol. 4, Article 639, pp. 81-84). London: Nature Publishing Group (Macmillan Publishers).

Liebrand, W., Nowak, A., and Hegselman, R. (Eds.) (1998). *Computer modeling of social processes*. New York: Sage

Nowak, A. and Vallacher, R. R. (1998). *Dynamical social psychology*. New York: Guilford Press.

Nowak, A. & Vallacher, R.R. (1998). Toward computational social psychology: Cellular automata and neural network models of interpersonal dynamics. In S. J. Read & L. C. Miller (Eds.), *Connectionist models of social reasoning and social behavior*. Mahwah, NJ: Lawrence Erlbaum