

Invited plenary talks at international conferences

STATPHYS-16 (IUPAP), Boston, USA, 1986, ``Distribution and Entropy of Clusters in Growth Models"

Pattern Formation Workshop, Aspen, USA, 1986, ``Viscous Fingering in Systems with Anisotropy"

European Physical Society General Meeting of the Condensed Matter Division, Pisa, Italy, 1987, ``Formation of Patterns in Aggregation and Viscous Flows"

Middle-European Cooperation on Phase Transitions and Critical Phenomena, Poi-doux-Chebres, Switzerland, 1987, ``Aggregation and Pattern Formation"

General Meeting of the Hungarian Academy of Sciences, Budapest, 1987, ``Fractal Growth"

Chaos in Education: Teaching Non-linear Phenomena, Csopak, 1987, ``Fractal Pattern Formation"

Fluctuations and Pattern Growth, Cargese, France, 1988, ``Spatial chaos in deterministic pattern formation"

Computer Simulation Studies in Condensed Matter Physics: Recent Developments, Athens, USA, 1989, ``Mass multifractality in cluster growth models"

First General Meeting of the Computational Physics Topical Group of American Physical Society, Boston, USA, 1989, ``Disordered Patterns in Deterministic Growth"

10. Fall Meeting of the Material Research Society, Boston, USA, 1989 ``Geometrical multifractality of diffusion-limited aggregates"

Frontiers of Condensed Matter Physics, Bar-Ilan, Israel, 1990 ``Mass Multifractality"

Gordon Conference on Fractals, Plymouth, USA, 1990 ``Tracing a diffusion-limited aggregate"

Middle-European Cooperation on Phase Transitions and Critical Phenomena, Duisburg, Germany, 1991, ``Multiaffinity"

General Meeting of the American Chemical Society, Atlanta, USA, 1991 ``Dynamics of Fractal Surfaces"

Dynamics Days, Berlin, Germany, 1991, ``Multiaffinity in turbulence and surface growth"

Physics of Inhomogeneous Materials, Trieste, Italy, 1991, ``Growing Self-Affine Surfaces"

Physics of Pattern Formation in Dissipative Systems, Kitakyushu, Japan, 1991, ``Dynamics of Growing Surfaces"

Growth Patterns in Natural Sciences, Granada, Spain, 1991, ``Playing around with a digitizer"

Workshop on Complexity, Barcelona, Spain, 1991, ``Complex Patterns: The Role of Instability and Randomness"

20. 3rd European Conference on Crystal Growth, Budapest, Hungary, 1991, ``Fractal Crystal Growth"

Surface Disordering, Les Houches, 1992, ``Kinetic Roughening with Multiplicative Noise"

Wrinkling of surfaces, Trieste, 1992, ``Dynamics of Roughening in Inhomogeneous Media"

Applied Electromagnetics, Sapporo, 1992 ``The geometry and dynamics of growing rough surfaces"

New Directions in Condensed Matter Physics, Bar-Ilan, 1993 ``Dynamics of growing interfaces in disordered media"

IUPAP Topical Conference in Statistical Physics, Taipei, 1993 ``Self-affine roughening in a model experiment on erosion in geomorphology"

New Directions in Physics, Triannual meeting of the Academy of Sciences, Budapest, 1993 ``Self-affine growth"

Spatio-temporal Pattern Formation in Complex Systems, Santa-Fe, 1993 ``Dynamics of surface roughening of bacterial colonies"

Pattern Formation in Microbiology, Tel-Aviv, 1994, ``Cooperative migration of bacteria via vertex dynamics"

Complex Processes in Physics and Chemistry (summer school), Girona, 1994, ``Introduction to Fractal Geometry"

30. Complex Fluids, Copanello Lido, 1994 ``Cooperative migration of self-driven particles"

Fractals, Chaos and Self-organized Criticality in Complex Systems, Wurzburg, 1994, ``Novel type of phase transition in a system of self-driven particles"

Material Research Society Fall Meeting, Boston, 1994 ``Self organized criticality in an experiment on the erosion of a granular pile"

European Network on Disordered Systems, Heraklion, 1994 ``Cooperative phenomena in a system of self-driven particles"

Fractals, (devoted to 70-th birthday of B. B. Mandelbrot), Curacao, 1995, ``Collective migration of bacteria"

MECO-20 Middle-European Cooperation in Statistical Physics, Linz, 1995, ``Novel type of phase transition in a system of self-driven particles"

Fractals and Dynamical Systems in Geosciences, Gelnhausen, 1995 ``Fractal Pattern Formation"

Quasicrystals Summer School, Balatonfured, 1995 "Introduction to Fractal Geometry"

Eotvos School and Workshop, Budapest, 1995 "Collective behaviour of molecular motors"

Physics of Biological Systems, Humlebeck, 1995 "Collective motion in biology: from molecular motors to flocks"

40. ISI Workshop on Nonlinear Systems, Torino, 1995 ``Collective transport of Brownian particles in periodic structures"

Pattern formation, Canberra, 1996 "Collective biological motion"

Pattern formation, fractals and statistical mechanics, Sydney, 1996 "Complex spatiotemporal patterns in two lattice models"

Origins and Evolution (ICSEB96), Budapest, 1996 "Collective behaviour during the fractal growth of bacterial colonies"

BIOINFORMATICS (GCB'96), Leipzig "Dynamics of the kinesin walk"

American Physical Society MArch Meeting, Kansas City, 1997 "A Statistical Physicist's approach to biological motion: from the kinesin walk to collective motion"

Frontiers of Condensed Matter Physics, Bar-Ilan, 1997 "Realistic models of biological motion"

Traffic and Granular Flow, Duisburg, 1997 "Granular transport in vibrated layers"

Fluctuations Far from Equilibrium, Dresden, 1998  
"Fluctuation driven transport in locally asymmetric periodic structures"

Statistical Mechanics of Biocomplexity, Sitges (Spain), 1998  
"Collective motion in biology"

50. Fractals and complexity in nature, Sliema (Malta), 1998  
"Scaling in Biology"

Statistical Physics Applied to Practical Problems, NATO ARW,  
Budapest, 1999, "Applications of Statistical Physics to Biological  
Motion"

Differential Equations on Fractals, Newton Institute, Cambridge,  
1999, "Collective motion of organisms"

Workshop on Patterns and Fluctuations in Biology, Seoul, 1999  
"Transitions and Optimal Self-Organization in the  
Collective Motion in Driven Systems"

Traffic and Granular Flow, Stuttgart, 1999  
"Freezing by heating and the jamming of pedestrians"

Phase Separation in Physics, Chemistry and Biology, Eotvos School,  
Budapest, 2000, "Collective Motion from Bacteria to Humans"

Multi-Scales Dynamics in Soft Matter and Biophysics , NATO ASI,  
Cargese, 2000, "Simulations of biopolymer dynamics"

Biophysics and biochemistry of motor proteins, Banff (Kanada), 2000,  
"Polymer dynamics in silico".

Frontiers in the Physics of Complex Systems, Conference Center, Dead  
Sea, 2001, "Dynamics of escape panic"

Complex Systems Summer School, Santa-Fe - Budapest, 2001,  
"Statistical Physics of Collective Behaviour"

60. NATO Advanced Study Inst. on Complexity from  
Microscopic to Macroscopic Scales: Decoherence and Large Deviations,  
2001, Geilo, "Collective Behaviour"

Smoluchhowski Symposium on "Complexity", Zakopane, 2001 "Statistical  
Physics of Human Collective Behaviour" ("after dinner" talk)

Smoluchhowski Symposium on "Complexity", Zakopane, 2001  
"Simulations of DNA uptake into cell nuclei"

Nanobiology, Atlanta, 2001, "Simulating the translocation of DNA  
through a pore"

Information Theory and Statistics, Budapest, 2001, "Spectra of Real-World Graphs"

MECO-27, Sopron, 2002, "Networks in life"

Mathematical Biology, Brussels, 2002, "Stochastic Networks in Biology"

Nano-Physics of Life Systems, Copenhagen, 2002, "Dynamics of biopolymers"

Complex Systems Summer School, Santa-Fe - Budapest, 2002, "Collective Behaviour"

EPS12, The 12-th General Meeting of the European Physical Society, Budapest, 2002, "Crowd Control"

70. Current Excitement in Biology, Hyderabad, 2002, "Crowd Control"

Complexity and Randomness, Eilat, 2003, "Mexican Waves and Iron Clapping"

Winter School on Particle Models in Biology, Pisa, 2003, "Collective behaviour of humans"

Networks: Structure, Dynamics and Function, Santa Fe, 2003, "Topological phase transitions"

Complexity and Non-extensivity, Erice, 2004, "Complexity in Collective Behaviour"

IUPAP STATPHYS-22, Bangalore, 2004, "Collective Behaviour"

Mathematical Modelling of Social Systems, Granada, 2005, "Collective Motion"

Mathematical Modelling of Social Systems, Granada, 2005, "Network Communities"

Structure and Function of Complex Networks Workshop, Trieste, 2005, "Uncovering the overlapping community structure of complex networks"

2005 FEBS Congress and IUBMB Conference, Budapest, 2005, "Uncovering the overlapping modular structure of protein interaction networks"

80. World Biophysics Congress 2005, Montpellier, 2005, "Modelling Collective Behaviour"

Complex Systems Conference, Paris, 2005, "Uncovering the modular structure of complex networks"

American Physical Society March meeting, Baltimore, 2006, "Uncovering the modular structure of complex networks in nature and society"

Social Networks and complexity, Budapest, 2006,

"Uncovering overlapping modules in social networks"

Large Scale Random Graphs Methods for Modelling Mesoscopic Behavior in Physical and Biological Systems, Budapest, 2006

"Uncovering the overlapping cohesive groups of complex networks from molecular to social"

ECCS'06 Workshop on Social and Ecological Networks, Oxford, 2006

"The overlapping cohesive groups of large social networks"

Workshop on "Active Motion and Swarms", Berlin, 2006

"Continuous phase transition in experiments and models of collective motion"

Netsci 2007, International Workshop and Conference on Network Science, New York, 2007

„Statistics and evolution of the community structure of large social networks"

Nonlinear Collective Behaviour: Networks, Swarming and Reaction Diffusion Dynamics, Leiden, 2007

"Continuous phase transition in collective motion: experiments and models"

Transylvanian Summer School and International Workshop on Complex Systems and Networks, Sovata, 2007

"Statistics and evolution of the community structure of large social networks"

90. Modeling and Computer Simulations of Microswimming and Bacterial Motility, Garching, 2007,

"Phase transitions in simulations and experiments on collective motion"

Computational philosophy: lessons from simple models, Copenhagen, 2007

„Simple models of flocking"

Complexity-NET workshop, Budapest, 2007

„Complex collective behaviour: Networks, flocks and crowds"

STARFLAG: Understanding patterns of animal group movement, Budapest, 2007

"Models, observations and visualization of flocking"

Detection and visualization of communities in large complex networks, Louvain, 2008

"Community dynamics in large social networks"

Dynamics of and on complex networks, ECCS 2008, Jerusalem

„Dynamics of the network of interactions in collective motion"

SASO 2008: SECOND IEEE INTERNATIONAL CONFERENCE ON SELF-ADAPTIVE AND SELF-ORGANIZING SYSTEMS, 2008, Venice, Italy

"Universal patterns of collective motion from minimal models of flocking"

Workshop on "Soft active materials" 2009, Syracuse, NY, USA

"Collective motion: experiments and models"

The Unexpected Link: Using network science to tackle social problems, Budapest, 2009, New method to generate graphs with desired properties

Collective dynamics and pattern formation in active matter systems Berlin, Germany, November 2009, Universal behaviour in collective motion

100. The 11-th Experimental Chaos and Complexity Conference, Lille, 2010, Network dynamics in collective motion

TEDx Danubia, 2010, Collective behaviour

Self-organization patterns in nature: from molecules to animals, XVII International Summer School "Nicolás Cabrera", Madrid, 2010, Collective motion

Flocking, swarming, and control of distributed systems, Workshop at FoCM'11, 2011 Budapest, Collective motion

Collective Dynamics and Pattern Formation in Active Matter Systems, 2011, Dresden, Pigeon Hierarchies

NETSCI'11, 2011 Budapest, Hierarchical networks

Perspectives on the legacy of Torahiko Terada (ISCS2011), 2011, Tokyo, Network Dynamics in Collective Motion

Workshop on Flocking, Swarming, and Control of Multi-Agent Systems, 2012, May, Sanghai, Collective motion

From Ecological Webs to Smart Energy Grids: Efficient Organization in Complex Networks, 2012 June, Bremen, Universal patterns and transitions in collective motion

110. From Ecological Webs to Smart Energy Grids: Efficient Organization in Complex Networks, 2012 June, Bremen, Hierarchy and/versus controllability of complex networks

Animal Swarms Workshop, Kfar Blum, Israel, 2013, Context dependent hierarchies

38th Conference of the Middle European Cooperation in Statistical Physics, Collective motion, Trieste 2013

Physics of Emergent Behaviour, Brighton, 2013, Context dependent hierarchies in animal and human societies

The 12th International Conference on Complex Acute Illness, Budapest, 2013, Spontaneous formation of hierarchical networks

Dynamical Systems, Zürich, 2014 Why do we live in hierarchies?

5th Workshop on Complex Networks, Bologna, 2014, Formation of hierarchical networks

Interaction Networks and Collective Motion in Swarms, Flocks and Crowds, Helsinki, 2014, Why do we live in hierarchies?

Workshop on Criticality in Natural and Social Complex Systems, Cuernavaca, Mexico, 2014, Why do we live in hierarchies?

Collective dynamics in physics, biology and social sciences, Dublin, Ireland, 2015, From cells through quadrupeds to drones

Dynamics of Multi-Level Systems, Dresden, Germany, 2015, Quantitative approaches to hierarchy

From Cohesion to Norms: HOW Social Groups Stay and Function Together, Göttingen, Germany, 2015, Collective decision-making from humans to robots