ORGANIZERS:

UNIVERSITATEA BABES-BOLYAI
BABES-BOLYAI TUDOMÁNYEGYETEM
BABES-BOLYAI UNIVERSITÄT
TRADITIO ET EXCELLENTIA

MEC𝒬45

45TH MIDDLE EUROPEAN COOPERATION IN STATISTICAL PHYSICS

14-16 SEPTEMBER 2020

Monday, 14th September

9:45	**Opening**

Session I
Chairman: Claudius Gros

10:00	Invited talk
	Tamás Biró S. (Wigner Research Centre for Physics, Hungary): Dynamical LGGR model for income distributions

10:40	Contributed talk
	Stas Burov (Bar-Ilan University, Israel): Packets of diffusing particles exhibit universal exponential tails

11:00	Contributed talk
	David Kessler (Bar-Ilan University, Israel): Regularized Boltzman-Gibbs statistics for deep non-confining potentials

11:20	Contributed talk
	Artem Ryabov (Charles University, Czech Republic): Nonequilibrium transport and phase transitions in driven diffusive systems with space-continuous dynamics

11:40	Contributed talk
	Yuichi Itto (University of Stuttgart, Germany): Analogy of fluctuating diffusivity of RNA-protein particles to thermodynamics

12:00	Poster Discussion I
	Jonas Berx (KU Leuven, Belgium): Beyond linear use of equation superposition
	Károly Dénes (Babeș-Bolyai University, Romania): Stablizing phase locked patterns in systems of Kuramoto oscillators with delayed coupling
	Botond Molnár (Babeș-Bolyai University, Romania): Voronoi diagrams to detect communities in weighted directed graphs
	Si Khaled Mehdi (University of Science and Technology Houari Boumediene, Algeria): Bosonics systems in the canonical ensemble
	Gergő Pál (University of Debrecen, Hungary): Phase transitions in low-velocity impact phenomena
	András Rusu (Babeș-Bolyai University, Romania): Complex fluctuations of a Lotka-Volterra type attention dynamics model
	Róbert Juhász (Wigner Research Centre for Physics, Hungary): Population boundary across an environmental gradient: Effects of quenched disorder
	Kuheli Biswas (Indian Institute of Science Education and Research, India): Information theoretic comparison of transcriptional and post-transcriptional regulations
	Hor Dashti-Naserabadi (Korea Institute for Advanced Study, South Korea): Competing universalities in Kardar-Parisi-Zhang growth models
	Levente Varga (Babeș-Bolyai University, Romania): Characterizing resting state brain networks based on probability distributions of network properties

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	Session II Chairman: Tamás S. Biró
14:00	Contributed talk
	Ferenc Iglói (Wigner Research Centre for Physics, Budapest): Reentrant random quantum Ising antiferromagnet
14:20	Contributed talk
	Nir Schreiber (Bar-Ilan University, Israel): Unusual changeover in the transition nature of local-interaction Potts models
14:40	**Break**
15:00	Keynote talk
	Hiroshi Kori (University of Tokyo, Japan): Tackling complex dynamics in biology and chemistry with phase oscillator models
16:00	**Break/Cultural program**
	Csaba T. Szabó (University of Sibiu, Romania): Transylvania: historical confluences and cultural heritage in Central-East Europe

	Session III Chairman: Adilson E. Motter	
17:00	Invited talk	
	Ginestra Bianconi (Queen Mary University of London, United Kingdom): Higher-order networks: simplicial complexes and their dynamics	
17:40	Contributed talk	
	Márton Karsai (Central European University, Austria): Reentrant phase transitions in complex contagion on multiplex networks	
18:00	**Break**	
18:20	Contributed talk	
	Viktoria Blavatska (Institute for Condensed Matter Physics of NASU, Ukraine): Shape of random polymer networks	
18:40	Invited talk	
	Zoltán Toroczkai (University of Notre Dame, United States of America): Architectural principles of the mammalian connectome: a machine learning approach	

Tuesday, 15th September
Session IV   Chairman: Ferenc Iglói

10:00	Invited talk
	Pascu Moca (University of Oradea, Romania): Spin fluctuations after quantum quenches in the S = 1 Haldane chain

10:40	Contributed talk
	Gonzalo De Polsi (University of the Republic, Uruguay): Conformal invariance in the nonperturbative renormalization group: A rationale for choosing the regulator

11:00	Contributed talk
	Martin Weigel (Coventry University, United Kingdom): Scaling of the random-field Ising model in two dimensions

11:20	Invited talk
	Hawoong Jeong (Korea Advanced Institute of Science and Technology, South Korea): Quantitative analysis of painting arts

12:00	**Break/Cultural program**
	Róbert Oláh-Gál and Zoltán Néda (Sapientia Hungarian University of Transylvania and Babeș-Bolyai University, Romania): The mathematical heritage of János Bolyai. Creating a new world out of nothing

	Session V
	Chairman: Julyan Cartwright
14:00	Contributed talk
	Mariana Krasnytska (Institute for Condensed Matter Physics of NASU, Ukraine): Critical behaviour of the Ising model with invisible states on a scale-free network
14:20	Contributed talk
	Eszter Bokányi (Agglomeration and Social Networks Research Group, Hungary): Patterns of social connections in urban space
14:40	Contributed talk
	Christoph Räth (German Aerospace Center, Germany): Predicting chaotic time series by means of reservoir computing
15:00	Invited talk
	György Korniss (Rensselaer Polytechnic Institute, United States of America): Using noise-correlated stochastic differential equations to model cryptocurrency rates and social media activities

15:40	**Poster Discussion II**
	Viktória Kádár (University of Debrecen, Hungary): Record statistics of bursts signals the onset of acceleration towards failure
	Olesya Mryglod (Institute for Condensed Matter Physics of NASU, Ukraine): Over 40 years of statistical physics history: bibliometric analysis of MECO
	Roland Szatmári (University of Debrecen, Hungary): Anisotropic crack patterns induced by shrinkage in thin layers
	Csanád Szuszik (University of Debrecen, Hungary): Debris flow generated by a collapsing granular column
	Zineb Tahiri (University Mohammed V, Morocco): The investigation of the correlation created by single anisotropic node on two-lane roads
	Maryna Bakumenko (Taras Shevchenko National University of Kyiv, Ukraine): Influence of solute polarity on diffusion in dimethylimidazolium chloride
	István Gere (Babeș-Bolyai University, Romania): Towards probabilistic forecasting of earthquakes
	Masayuki Hase (University of São Paulo, Brazil): Weakening connections in heterogeneous mean-field theory
	Robert Paul Salazar Romero (ECCI University, Colombia): Monte Carlo simulations as an efficient method to calculate electric fields in gapped surface electrodes
	Yuri Tarasevich (Astrakhan State University, Russia): Random sequential adsorption of stiff linear k-mers onto a square lattice: Characterization of domain formation
	Julian Jose Riccardo (National University of San Luis - CONICET, Argentina): Generalized exclusion statistics

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Session VI
Chairman: György Korniss

17:00	Keynote talk
	Adilson E. Motter (Northwestern University, United States of America): Converse symmetry breaking in network dynamics
18:00	Contributed talk
	Horacio S. Wio (Institute for Cross-Disciplinary Physics and Complex Systems, Spain): Variational approach to KPZ: Fluctuation theorems, large deviation function for entropy production, and probability distribution
18:20	Contributed talk
	Karel Proesmans (Simon Fraser University, Canada): Finite-time Landauer principle
18:40	Contributed talk
	Yuri Tarasevich (Astrakhan State University, Russia): Transparent electrodes with rod- and ring-like fillers: Monte Carlo simulation and analytical evaluation
19:00	Invited talk
	Claudius Gros (Goethe University Frankfurt, Germany): Statistical physics of envy

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Wednesday, 16th September
Session VII   Chairman: János Kertész

10:00	Invited talk
	Julyan Cartwright (University of Granada, Spain): Chemobrionics and the origin of life
10:40	Contributed talk
	Giuseppe Gonnella (University of Bari Aldo Moro, Italy): Phase behavior of passive and active disks in two dimensions
11:00	Contributed talk
	Ibon Santiago (Technical University of Munich, Germany): Strategies for motile cell-like compartments
11:20	Contributed talk
	Nikolai Lebovka (F. D. Ovcharenko and Institute of Biocolloidal Chemistry of NASU, Ukraine): Elongated particles: From diluted two-dimensional systems to dense ones
11:40	Contributed talk
	Steven Mathey (University of Cologne, Germany): Activating new universality with the Kibble-Zurek mechanism

12:00	**Poster Discussion III**
	Dániel Ábel (Maven Seven Solutions Zrt., Hungary): Modeling hierarchical and modular network of organizations
	Attila Gergely (Babeș-Bolyai University, Romania): Flickering candle flames: experiments and dynamical modelling
	Róbert-Attila Inczefi (Babeș-Bolyai University, Romania): Molecular dynamics simulation study of free and constrained Brownian motions
	Mária Ercsey-Ravasz (Babeș-Bolyai University, Romania): A max-SAT solver with high-performance analog dynamics
	Bence Schneider (Babeș-Bolyai University, Romania): Time-series analysis with state-transition networks
	Arthur Tunyagi (Babeș-Bolyai University, Romania): Virtually coupled mechanical oscillators
	Máté Józsa (Babeș-Bolyai University, Romania): Reverse engineering complex systems from their network models
	Bulcsú Sándor (Babeș-Bolyai University, Romania): Attractoring: a dynamical systems framework for self-organized robotic locomotion
	Maxym Dudka (Institute for Condensed Matter Physics of NASU, Ukraine): Phase transitions in three-dimensional random anisotropy Heisenberg model: two case studies
	Marco Mancastroppa (University of Parma - INFN, Italy): Active and inactive quarantine in epidemic spreading: a general formalism for adaptive activity-driven networks
	Akari Matsuki (University of Tokyo, Japan): Analysis of intervention threshold for epidemic control using metapopulation models

	Session VIII
	Chairman: Ginestra Bianconi
14:00	Contributed talk
	Claudius Gros (Goethe University Frankfurt, Germany): Autonomously adapting non-conserving sandpiles
14:20	Contributed talk
	Beatriz Seoane (Complutense University of Madrid, Spain): A scaling approach to estimate the COVID-19 infection fatality ratio by age
14:40	Contributed talk
	Nikolaos Fytas (Coventry University, United Kingdom): Evidence for supersymmetry in the random-field Ising model at $D = 5$
15:00	Keynote talk
	János Kertész (Central European University, Austria): What do digital footprints tell about us? From the grandma effect to economic wrongdoing
16:00	Break/Cultural program
	Viktória Adrienn Barazsuly (Eszterházy Károly University, Hungary, Korzo Association, Romania): Mesmerized by light and colour: the Nagybánya (Baia Mare) Artists' Colony

	Session IX Chairman: Yurij Holovatch
17:00	**Invited talk**
	Emőke-Ágnes Horvát (Northwestern University, United States of America): The science of sharing and the sharing of science: Diffusion of scientific articles across online platforms
17:40	Contributed talk
	Antonio José Ramirez-Pastor (National University of San Luis - CONICET, Argentina): Adsorption statistics of structured molecules
18:00	**Break**
18:20	Contributed talk
	Haim Taitelbaum (Bar-Ilan University, Israel): Thin film spreading: bulk and precursor non-universal dynamics
18:40	**Invited talk**
	Reinhard Folk (Johannes Kepler University Linz, Austria): Middle European Cooperation in Statistical Physics: a historical overview
19:20	**Closing**

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