

ECSPP`24 - Programm

Monday | July 01

09:00 E. Koonin, G. Karyan, R. Aroutiounian The greetings

09:20 Vladimir Redko, SRISA RAS Cognition of simple properties of nature by a cognitive autonomous agent

10:00 Alexander Bratus, Russian University of Transport Mathematical Model of Adaptive Immune Response Based on Kye-Lock Predication and Markov Gaussian Stochastic Processes

10:40 Reza Jafari, Shahid Beheshti University A new evolution of social media bots: created individually but playing together

11:20 Shahin Rouhani, Sharif University Phase Transitions in Vicsek Model

12:00 Coffee Break

12:15 Mikhail Gelfand, Skolkovo University Noise, Randomness, and Novelty in Molecular Genetic Systems

12:45 M Katsnelson, Radboud University Nijmegen Multiscale structural complexity of natural patterns

13:25 Lunch Break

15:30 Dániel Czégel, Eotvos University The universe is turtles all the way down: goal calculus formalizes evolvable hierarchical modular design

16:00 Vitaly Vanchurin On the role of symmetries in biological evolution

16:30 Paulien Hogeweg, Utrecht University Evolution of control strategies to alleviate multilevel conflicts

17:10 Coffee Break

17:20 Eugene Koonin, (NIH/NLM/NCBI) Theoretical approaches in cellular evolution: modeling origin of r and K strategies, cooperation and programmed cell death

18:00 Welcome Party

Tuesday | July 02

- 09:00 Qian Hong, Washington University Information, Thermodynamics, and the Secret of Laws of Physics
- 09:40 Kamran Kaveh, Washington University Games of multicellularity
- 10:20 Armen Allahverdyan, AANL Stochastic thermodynamics of adaptation

11:00 Coffee Break

- 11:10 Mikhail Burtsev Landau AI Fellow, London Institute of Mathematical Sciences A review of neural architecture search
- 11:50 Oliver Rivoire, ESPCI Paris Physics and evolution of catalysis and autocatalysis
- 12:30 Artem Oganov, Skolkovo University Evolutionary crystal structure prediction and computational materials discovery

13:10 The city tour

Wednesday | July 03

- 09:40 Alexey Melkikh, Ekaterinburg University Mutations, sex, and genetic diversity: New arguments for partially directed evolution
- 10:20 Jin Wang Stony Brook The landscapes and fluxes
- 11:00 David H Wolpert, Santa Fe Institute Trade-offs between thermodynamic cost, intelligence and fitness in living organisms
- 11:40 D. Saakian, AANL The self-reflection and Berry Phase in evolution
- 12:20 Ricard Sole, Universitat Pompeu Fabra and External Professor, Santa Fe Institute Fundamental constraints to the logic of living systems

13:00 Lunch

- 14:10 Tuan Pham Minh, Niels Bohr Institute Dynamical Theory for Adaptive

Systems, network interactions

14:45 Igor Rouzine, Sechenov Institute of Evolutionary Physiology and Biochemistry RAS Inference of fitness landscape from genomic data

15:25 Victoria Korogodina Two-level adaptation system in yeast cell

16:00 Coffee break

16:10 Rouben Aroutiounian, NAS, Research Institute of Biology, Yerevan State University Genomic markers of viral-host conflict and adaptation in COVID-19 patients

16:45 Jose Fernando Fontanari, University Sao Paulo A soluble model for synchronized rhythmic activity in social insects

17:20 Yaroslav Ispolatov, Univ. of Santiago, Santiago, Chile Multi-level evolution and group selection

18:30 The conference banquette

Thursday | July 04

08:30 A. S. Gevorkyan, Institute for Informatics and Automation Problems, NAS of RA Irreversibility, Time's Arrow and Complexity in a Classical Three-Body Dynamical System

09:00 Vladimir Suvorov, Auriga A solution of the Crow-Kimura evolution model on fluctuating fitness landscape

09:15 Kamyar M Roudakian, Koc University Information transfer as an evolutionary feed for emergence of critical brain network

09:30 Enno Wein, Instigate Looking on evolution from both negative and positive entropy perspectives

09:45 Angela Sargsyan, Research Institute of Biology, YSU Genetically heterogeneous and homogeneous bio-indicators of evolution

10:00 Hranush Avagyan, Institut of molecular biology, Yerevan Different Heterocycles show significant anti-SARS2 activity in vitro and in vivo

10:15 Kunihiro Kaneko, Niels Bohr Institute Beyond Evolutionary Dimensional Reduction

- 11:00 Edward Poghosyan, , Institute for Informatics and Automation Problems, NAS of RA AI: Challenging the Origination of Cognizing
- 11:15 Zaven Navoyan, YSU AI and toxicology
- 11:30 Sevak Sargsyan, RAU AI research in RAU
- 11:45 Nerses Erirstyan, ISAA About ISAA
- 12:00 Artak Hovsepyan, National center of Communication and AI technologies AI and Armenian texts
- 12:15 V. Poghosyan, Instigate AI in Instigate
- 12:45 Break
- 13:30 Mikhail Burtsev LLM
- 14:20 Matteo Marsili Towards machine understanding
- 15:10 Ricard Sole Evolution of Brains and Computers: The Roads Not Taken
- 16:00 Vitaly Vanchurin The World as a Neural Network: from theory of everything to artificial neural computer.
- 17:00 From the basic science to the advanced Artificial Intelligence, D. Saakian, AANL.
- 18:30 E. Koonin The closing of the conference