


		September 5										
		Main Event										
08:00	Registrations										08:00	
08:45	Welcome (Auditorium)										08:45	
09:00	Keynote - Andrea Bamberg Migliano (Auditorium)										09:00	
09:15											09:15	
09:30											09:30	
09:45	Keynote - Gourab Ghoshal (Auditorium)										09:45	
10:00											10:00	
10:15											10:15	
10:30	Lightning 2 (Auditorium)										10:30	
10:45											10:45	
11:00	Coffee break										11:00	
11:15											11:15	
11:30	Complexity and Sustainability in Ecological Systems 1 (Room 11)	Complexity in Cities 3 (Auditorium)	Human Mobility 1 (Lab 1)	Financial Complexity, and Economic Networks 3 (Room 4)	Complexity in Health (Room 5)	Complexity and Opinion Dynamics in Society (Room 1-2-3)	Complex Networks 1 (Room 7-8)	Complex Systems Applications (Room 9)	Theory of Complex Systems 2 (Room 10)			11:30
11:45												11:45
12:00												12:00
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13:00	Lunch										13:00	
13:15											13:15	
13:30											13:30	
13:45											13:45	
14:00	Keynote - Suzy Moat (Auditorium)										14:00	
14:15											14:15	
14:30											14:30	
14:45	Invited - Giulio Cimini (Auditorium)										14:45	
15:00											15:00	
15:15											15:15	
15:30	Complexity and Sustainability in Ecological Systems 2 (Room 11)	Complexity in Cities 4 (Auditorium)	Human Mobility 2 (Lab 1)	Machine Learning (Room 4)	Modeling and Mitigating Epidemics 3 (Room 5)	Behavioral Patterns and Social Structures 3 (Room 1-2-3)	Complex Networks 2 (Room 7-8)	Cognition and Complexity in Social Systems (Room 9)	Higher-Order Networks (Room 10)			15:30
15:45												15:45
16:00												16:00
16:15	Coffee break										16:15	
16:30											16:30	
16:45	Complexity and Sustainability in Ecological Systems 2 (Room 11)	Complexity in Cities 4 (Auditorium)	Human Mobility 2 (Lab 1)	Machine Learning (Room 4)	Modeling and Mitigating Epidemics 3 (Room 5)	Behavioral Patterns and Social Structures 3 (Room 1-2-3)	Complex Networks 2 (Room 7-8)	Cognition and Complexity in Social Systems (Room 9)	Higher-Order Networks (Room 10)			16:45
17:00												17:00
17:15												17:15
17:30	Poster Session & Cocktails Sponsored By JPhys COMPLEXITY (The Sanctuary)										17:30	
17:45											17:45	
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19:45			19:45									

Sept.5 Lighting 2	Auditorium	Sept.6
10:30 On the forecastability of food insecurity	<i>Foini, Pietro; Tizzoni, Michele; Martini, Giulia; Paolotti, Daniela; Omodei, Elisa*</i>	10:30
10:33 Higher-order correlations reveal complex memory in temporal hypergraphs	<i>Gallo, Luca*; Lacasa, Lucas; Latora, Vito; Battiston, Federico</i>	10:36
10:36 Distinguishing between determinism and noise in complex systems data	<i>Rowland Adams, Joe*</i>	10:39
10:39 Complexity and Ethics	<i>Alterman Blay, Enio*; Jaramillo, Ana; Adisa, Olumide; Dies, Samantha; Resende, Paulo; Di Bona, Gabriele</i>	10:42
10:42 Urban poor exhibit higher smartphone usage during nighttime hours	<i>Musso, Andrea*; Alessandretti, Laura M</i>	10:45
10:45 Revisiting and modeling power-law distributions in empirical outage data of power systems	<i>Odor, Geza*; Hartmann, Balint; Deng, Shengfeng; Kelling, Jeffrey</i>	
10:48 Multiplayer cooperation in networks of communities	<i>Pires, Diogo L*; Broom, Mark</i>	
	Chair: <i>Iacopo Iacopini</i>	
Sept.5 Complexity in Cities 3	Auditorium	Sept.6
11:30 Assessing the real estate market spatial segmentation	<i>Abella, David*</i>	11:30
11:45 Mobility is more sustainable in compact and 15-minute cities	<i>Marzolla, Francesco*; Bruno, Matteo; Monteiro Melo, Hygor Piaget; Loreto, Vittorio</i>	11:45
12:00 Integrating Air Traffic into the Global Value Chain: the case of Singapore	<i>Amico, Ambra*</i>	12:00
12:15 Finite-size scaling of human-population distributions over fixed-size cells and relation to bifractality	<i>corral, alvaro*; Garcia del Muro, Montse</i>	12:15
12:30 Land Use and Urban Accessibility: A New Approach using Fitness and Complexity Metrics	<i>Monteiro Melo, Hygor Piaget*; Bruno, Matteo; Loreto, Vittorio</i>	12:30
12:45 Emerging electricity usage patterns and its origins in urban travel behavior	<i>Acosta Sequeda, Juan G*; Auld, Joshua; Derrible, Sybil</i>	
	Chair: <i>Roberto Murcio</i>	
Sept.5 Complex Networks 1	Room 7-8	Sept.6
11:30 Communicability geometry reveals antagonistic factions in signed networks	<i>Diaz-Diaz, Fernando*; Estrada Roger, Ernesto</i>	11:30
11:45 Investigating shocking events in temporal and multilayer complex networks	<i>Ba, Cheick Tidiane*; Steer, Ben; Clegg, Richard G</i>	11:45
12:00 Multi-Scale Node Embeddings for Networks	<i>Milocco, Riccardo RM*; Garlaschelli, Diego; Jansen, Fabian</i>	12:00
12:15 Temporal network generation: from small to large scale in time and topology	<i>Cencetti, Giulia*; Barrat, Alain</i>	12:15
12:30 Graph embeddings with structured kernels	<i>Talaga, Szymon*</i>	12:30
	Chair: <i>Giulio Cimini</i>	12:45
Sept.5 Complexity and Sustainability in Ecological Systems 1	Room 11	Sept.6
11:30 Modelling higher-order interactions using agent based models	<i>Van Giel, Thomas*; Baetens, Jan; De Baets, Bernard; Daly, Aisling</i>	11:30
11:45 Universal spatial properties of coral reefs	<i>Giménez-Romero, Àlex*; Matías, Manuel A.; Duarte, Carlos</i>	11:45
12:00 Spatial self-organisation of microbial decomposer communities	<i>Kaiser, Christina*; Dieckmann, Ulf; Evans, Sarah; Guseva, Ksenia; Widder, Stefanie</i>	12:00
12:15 Stable coexistence in indefinitely large systems of competing species	<i>Niek Mooij, Mara Baudena, Anna von der Heydt, Ivan Kryven*</i>	12:15
12:30 Game theory to implement conservation strategies on marine life	<i>Buenvaron, Gorka*</i>	12:30
12:45 Structural controllability of cascading regime shifts	<i>Rocha, Juan C*; Crépin, Anne-Sophie</i>	
	Chair: <i>Nina Fefferman</i>	
Sept.5 Financial Complexity, and Economic Networks 3	Room 4	Sept.6
11:30 The rise and fall of WallStreetBets: social roles and opinion leaders across the GameStop saga	<i>Mancini, Anna*; Cimini, Giulio; Di Clemente, Riccardo; Desiderio, Antonio; Palermo, Giovanni</i>	11:30
11:45 Prediction of TV weekly sales using time series decomposition	<i>Yamashita Rios de Sousa, Arthur Matsuo*; Ozaki, Junichi; Shida, Yohei; Wu, Qianyun; Yixuan, Zheng; Zhong, Zhihua; Masukawa, Rie; Jiang, Jiwei; Nagayama, Kei; Tokumoto, Daiki; Ando, Daisuke; Takayasu, Hideki; Takayasu, Misako</i>	11:45
12:00 Modeling Negative Sentiment Diffusion in Financial Markets via Reddit Interactions: Integrating Deep Learning and Network Dynamics	<i>Baratto, Marta*; Paletto, Lorenzo</i>	12:00

12:15	Networked Truths: Understanding the Statistical Patterns of Fact-Checkers' Debunks	<i>Bertani, Anna A; Kadkhoda, Kaveh*; Mazzeo, Valeria; Szymkiewicz, Aleksy; Gallotti, Riccardo</i>	12:15
12:30	A novel Sparse Graphical Model for optimizing portfolio assets allocation	<i>Riso, Luigi*; Zoia, Maria Grazia; Di Matteo, Tiziana</i>	12:30
	Chair: Hiroko Yamano		12:45
Sept.5	Complexity in Health	Room 5	Sept.6
11:30	Exploring Diabetics' Online Food Shopping Experience with Large Pre-Trained Language Models	<i>Zhu, Zhen*</i>	11:30
11:45	Stratification of Cancer Patients Using Visit Trajectory Analysis	<i>Lindner, Simon D*; Zeilinger, Elisabeth; Gaiger, Alexander; Klimek, Peter; Lubowitzki, Simone</i>	11:45
12:00	The Gravity of Gravity: How Enhanced Newtonian Principles Predict Emergency Department Visits	<i>Bertolotti, Francesco*; Schettini, Fabrizio; Asperti, Federica; Foglia, Emanuela</i>	12:00
12:15	Unraveling cradle-to-grave disease trajectories from multilayer comorbidity networks	<i>Dervic, Elma *</i>	12:15
12:30	Bridging Complexity and Biomedical Sciences	<i>Espinosa Sosa, Alejandro*</i>	12:30
	Chair: Chiara Poletto		
Sept.5	Human Mobility 1	Lab 1	Sept.6
11:30	Barriers of Urban Mobility	<i>Pintér, Gergő*; Lengyel, Balázs</i>	11:30
11:45	Decomposing geographical and universal aspects of human mobility	<i>Boucherie, Louis*; Maier, Benjamin; Lehmann, Sune</i>	11:45
12:00	A generalized vector-field framework for mobility	<i>Mazzoli, Mattia*; Liu, Erjian; Ramasco, Jose</i>	12:00
12:15	Detection of Anomalous Spatio-temporal Patterns of App Traffic in Response to Catastrophic Events	<i>Medina, Sofia*; Pedreschi, Nicola; LaRock, Timothy; Babul, Shazia Ayn; Sahasrabudde, Rohit; Lambiotte, Renaud</i>	12:15
12:30	Modelling Traffic Flow for Mixed Slow and Fast Moving Transport System: The Case of Baybay City	<i>Derecho, John Niño T.*; Abad, Hannah Rissah</i>	12:30
	Chair: Luca Pappalardo		12:45
Sept.5	Complex Systems Applications	Room 9	Sept.6
11:30	Tweet2Geo: from locations extraction to the network of international interests	<i>Orsanigo, Veronica*; Bontorin, Sebastiano; Louf, Thomas; Leonardelli, Elisa; Palmero Arosio, Alessio; Tonelli, Sara; Gallotti, Riccardo</i>	11:30
11:45	Mining higher-order triadic interactions in gene-expression data	<i>Niedostatek, Marta*; Baptista, Anthony; Sanchez-Garcia, Ruben J; MacArthur, Ben; Yamamoto, Jun; Bianconi, Ginestra; Kurths, Jürgen</i>	11:45
12:00	Modeling lead-acid batteries lifecycle performance using rhoDCCA in the automotive context	<i>Murari, Thiago B*; Moret, Marcelo A; Costa, Roberto</i>	12:00
12:15	Path dependency in the evolution of grammar: a network analysis of linguistic traits	<i>Jon-And, Anna*; Domínguez-García, Virginia; Ranjan, Ravi; Bücken, Joris; Ang, Bernise; Skirgård, Hedvig; Jansson, Fredrik; Michaud, Jérôme</i>	12:15
12:30	Quantifying Kuramoto coupling across inherent brain networks: Application to EEG data in major depressive disorder	<i>Ghosh, Anupam*</i>	12:30
12:45	Language distances and geographical proximity through the lens of syntactic variation: An information-theoretic approach	<i>Sanchez, David*; De Gregorio, Juan; Toral, Raul</i>	
	Chair: Alex Arenas		
Sept.5	Complexity and Opinion Dynamics in Society	Room 1-2-3	Sept.6
11:30	A Higher-Order Lens for Social Systems	<i>Preti, Giulia*; Fazzino, Adriano; Petri, Giovanni; De Francisci Morales, Gianmarco</i>	11:30
11:45	Dynamics of political regime types in the 20th century	<i>Pirker-Diaz, Paula*; Wiesner, Karoline</i>	11:45
12:00	The role of moral values in the social media debate	<i>Prevedello, Giulio*; Brugnoli, Emanuele; Gravino, Pietro; Lo Sardo, Donald Ruggiero; Loreto, Vittorio</i>	12:00
12:15	Understanding individual experience in a human society by applying the normalized Lempel-Ziv complexity to an adaptive social network model	<i>Gangadhar, Akshay*; Sayama, Hiroki</i>	12:15
12:30	Phase coexistence as a consequence of heterogeneity in the Hegselmann-Krause opinion dynamics model	<i>Perrier, Rémi; Schawe, Hendrik; Hernandez, Laura*</i>	12:30
	Chair: Guillaume Deffuant		12:45
Sept.5	Theory of Complex Systems 2	Room 10	

- 11:30 Asymmetry in the distribution of unit properties is the key factor determining the efficiency of collective oscillations in FitzHugh-Nagumo networks *Scialla, Stefano*; Patriarca, Marco; Heinsalu, Els; Yamakou, Marius; Cartwright, Julyan*
- 11:45 Meta-plasticity and memory in multi-level recurrent feed-forward networks *Zanardi, Gianmarco*; Bettotti, Paolo; Morand, Jules; PAVESI, Lorenzo; Tubiana, Luca*
- 12:00 Estimating Time-Resolved Stochasticity in Nonstationary Timeseries *Manshour, Pouya*; Palus, Milan; Rahimi Tabar, M. Reza*
- 12:15 The distribution of first passage times of random walks on random regular graphs *Biham, Ofer*; Tishby, Ido; Katzav, Eytan*
- 12:30 Universal scaling behavior at finite times in the transcritical, saddle-node, and pitchfork discrete and continuous bifurcations *corral, alvaro**
- 12:45 A microstrip antenna based on aperiodic tilings. *Rivera Torres, Pedro J**

Chair: Filippo Radicchi

Sept.5 Complexity in Cities 4

Auditorium

- 15:30 City-State Interactions in a Resource-Constrained Environment: an Agent-based Model *Piras, Andrea; Bertolotti, Francesco**
- 15:45 Understanding Resource-Flow Resilience in the Face of Climate Change *González, Marta C.*; Salgado, Ariel; He, Yiyi; Radke, John; Ganguly, Auroop*
- 16:00 Monocentrism and phase transition in traffic systems *Amaduzzi, Alberto*; Gallotti, Riccardo; González, Marta C.; Bazzani, Armando*
- 16:45 Evolution of urban community structures *Guizzo, Andrea*; Centellegher, Simone; Lucchini, Lorenzo; Privitera, Filippo; Lepri, Bruno; Girolami, Michele; Pappalardo, Luca; Gallotti, Riccardo*
- 17:00 Hierarchical Structure of Interregional Supply Chain: A Multilayer Network Approach *Maulana, Ardian*; Situngkir, Hokky*

Chair: Li Ruiqi

Sept.5 Cognition and Complexity in Social Systems

Room 9

- 15:30 Impact of cognitive biases on collective reinforcement learning and application to sustainability transitions *Bergerot, Clemence*; Barfuss, Wolfram; Romanczuk, Pawel*
- 15:45 Exploitation and exploration in text evolution. Quantifying planning and translation flows during writing *Lo Sardo, Donald Ruggiero*; Gravino, Pietro; Loreto, Vittorio; Cuskley, Christine*
- 16:00 Unfreezing Opinions: Understanding Pretest Effects in the Ising Attitude Model *Smal, Iris M*; Dalege, Jonas; Alexi, Xanthippi; van der Maas, Han*
- 16:45 Revisiting Word Order in the Left Periphery: A Dynamic Model Inspired by Ecological Systems *Callegari, Elena**

Chair: Cynthia S. Q. Siew

Sept.5 Behavioral Patterns and Social Structures 3

Room 1-2-3

- 15:30 When Dialects Collide: How Socioeconomic Mixing Affects Language Use *Louf, Thomas*; Ramasco, Jose; Sanchez, David; Karsai, Marton*
- 15:45 Multimodal emotional analysis of the conversation around climate change on YouTube *Ganbold, Byambakhishig; Kadkhoda, Kaveh; Sebe, Nicu; Gallotti, Riccardo**
- 16:00 Thresholds for learning language lead to a variety of stable states in bilingual societies *Tamm, Mikhail*; Heinsalu, Els; Scialla, Stefano; Patriarca, Marco*
- 16:45 From Journals to GitHub: Understanding AI Researchers' Practices *Houssard, Antoine**
- 17:00 Polarization on social media - German Twitter trends 2021-2023 *Pournaki, Armin; Gaisbauer, Felix; Olbrich, Eckehard**
- 17:15 Can language learning be responsible for language coexistence? *Tamm, Mikhail; Scialla, Stefano; Heinsalu, Els; Patriarca, Marco**

Chair: Floriana Gargiulo

Sept.5 Complexity and Sustainability in Ecological Systems 2

Room 11

- 15:30 Complexity Issues in Sustainability: Time to Focus on Overall System Outcomes Rather Than Simplistic Individual Targets *Fisher, Len R*; Gross, Thilo; Hillebrand, Helmut; Sandberg, Anders; Sayama, Hiroki*
- 15:45 From dense to sparse - Optimal Transport in a random graph framework *Buffa, Lorenzo*; Cimini, Giulio; Mazzilli, Dario; Patelli, Aurelio; Saracco, Fabio*
- 16:00 Ranking species in complex ecosystems through nestedness maximization *Mariani, Manuel Sebastian; Mazzilli, Dario; Patelli, Aurelio*; Morone, Flaviano*
- 16:45 On the structure of species-function participation in multilayer ecological networks *Cuevas Blanco, Mar**
- 17:00 Network theory for ecosystem services research *Casali, Ylenia**

Chair: Javier Borge Holthoefer

Sept.5 Modeling and Mitigating Epidemics 3

Room 5

15:30	Epidemic spreading in group-structured populations	<i>Radicchi, Filippo*</i>
15:45	Local awareness fatigue during COVID-19 inferred by surveys and genetic sequence data	<i>Odor, Gergely*; Karsai, Marton</i>
16:00	The limits of human mobility traces to predict the spread of COVID-19	<i>Delussu, Federico; Tizzoni, Michele; Gauvin, Laetitia*</i>
16:45	Quantifying the impact of border screening and travel restrictions during global infectious disease outbreaks	<i>Bay, Clara*; Davis, Jessica; Chinazzi, Matteo; Vespignani, Alessandro</i>
17:00	The socioeconomic determinants of contact patterns: insights from Italy	<i>Tizzani, Michele*; Gauvin, Laetitia</i>
17:15	The effect of Human Mobility on Exposure to Air Pollution	<i>Delussu, Federico*; Alessandretti, Laura M; Lousseau, David</i>
Chair: Eugenio Valdano		
Sept.5 Higher-Order Networks		Room 10
15:30	Entropy-based random models for hypergraphs	<i>Squartini, Tiziano*</i>
15:45	Insights from exact social contagion dynamics on networks with higher-order structures	<i>Kiss, Istvan Z*</i>
16:00	Multiplex measures for higher-order networks	<i>Lotito, Quintino Francesco*; Montresor, Alberto; Battiston, Federico</i>
16:45	Intra-order hyperedge overlap drives explosive collective behaviors in systems with higher-order interactions	<i>Malizia, Federico*</i>
17:00	Functional reducibility of higher-order networks	<i>Lucas, Maxime*; Gallo, Luca; Ghavasieh, Arsham; Battiston, Federico; De Domenico, Manlio</i>
Chair: Antoine Allard		
Sept.5 Machine Learning		Room 4
15:30	Non-Spatial Hash Chemistry as a Minimalistic Open-Ended Evolutionary System	<i>Sayama, Hiroki*</i>
15:45	The Spontaneous Emergence of Social Norms in Societies of Large Language Model-based Agents	<i>Flint Ashery, Ariel*; Aiello, Luca Maria; Baronchelli, Andrea</i>
16:00	Unpacking heterogeneities of Swarm Intelligence using Network Science	<i>Lira da Silva, Rodrigo Cesar; Macedo, Mariana*; Siqueira, Hugo Valadares; Menezes, Ronaldo; Bastos-Filho, Carmelo J. A.</i>
16:45	From Raman spectra of thyroid samples to carcinoma diagnosis through eXplainable Artificial Intelligence	<i>Bellantuono, Loredana*; Tommasi, Raffaele; Di Gioacchino, Michael; Pantaleo, Ester; Amoroso, Nicola; Crucitti, Pierfilippo; Longo, Filippo; Monaco, Alfonso; Naciu, Anda Mihaela; Palermo, Andrea; Taffon, Chiara; Tangaro, Sabina; Crescenzi, Anna; Sodo, Armida; Bellotti, Roberto</i>
17:00	Emergence of Consensus among Large Language Models	<i>De Marzo, Giordano*</i>
Chair: Diogo Pacheco		
Sept.5 Human Mobility 2		Lab 1
15:30	Resilience of mobility network in Chile to dynamic population response across COVID-19 interventions: evidence from Chile	<i>Casaburi, Pasquale*; Mazzoli, Mattia; Gozzi, Nicolò; Ferres, Leo; Kalimeri, Kyriaki; Dall'Amico, Lorenzo; Sapienza, Anna; Schifanella, Rossano</i>
15:45	Human mobility in the metaverse	<i>Vasan, Kishore*</i>
16:00	Prioritizing links in bicycle network plans with greedy network optimization	<i>Sebastiao, Clément*; Vybornova, Anastassia; Rahbek Vierø, Ane; Szell, Michael</i>
16:45	Those holding the fort: The complexity of human mobility beyond the traditional commute patterns	<i>Murcio, Roberto*; Barros, Joana</i>
17:00	Mixing Individual and Collective Behaviours in Mobility Models	<i>Bontorin, Sebastiano; Centellegher, Simone; Gallotti, Riccardo; Pappalardo, Luca; Lepri, Bruno; Luca, Massimiliano*</i>
Chair: Mattia Mazzoli		
Sept.5 Complex Networks 2		Room 7-8
15:30	Information diffusion backbone of temporal higher-order networks	<i>Zhang, Shilun*; Wang, Huijuan; Ceria, Alberto</i>
15:45	Network mutual information measures for graph similarity	<i>Felippe, Helcio*; Battiston, Federico; Kirkley, Alec</i>
16:00	Heterogeneity in Multilayer Random Boolean Networks	<i>Lopez-Diaz, Amahury J.*; Franco, Mario; Gershenson, Carlos</i>
16:45	Topological communities in complex networks	<i>Seoane, Luis F*</i>
17:00	Multi-scale Laplacian community detection in heterogeneous networks	<i>Gabrielli, Andrea*</i>
Chair: Laura Hernandez		