NetSci-X 2020: Keynote/Invited and Parallel Sessions Talk Schedule

Room	Theme	Authors	Title
Keynote/Invited [Monday Jan. 20, 2020 -- 9:10-10:40]			**Chair: Hiroki Sayama, Junichi Yamanoi**
Ibuka Auditorium (1F)	**Keynote**	Katy Börner	Network Models and Visualizations of Education, Scientific, and Job Market Developments
	Invited	Joe Labianca	Recognizing the Positive and Negative Ties in a Network
Contributed Session 1 [Monday Jan. 20, 2020 -- 11:10-12:30]			
Ibuka Auditorium (1F)	**Economic and Financial**	Irena Vodenska, Nima Dehmamy, Alexander Becker, Sergey Buldyrev, Shlomo Havlin, and Gene Stanley	Vulnerability of interconnected financial networks
Chair: Giulio Cimini		Takayuki Mizuno, Shohei Doi, and Shuhei Kurizaki	Visualizing indirect influence of China in global shareholding networks
		Kimihiro Nakaga, Koji Eguchi, Takayuki Mizuno, and Atsuhiro Takasu	Embedding and predicting supply-chain networks
		Mayu Furukawa, Tomomi Kito, Junichi Yamanoi, and Hiroki Sayama	An integrated index for product & customer diversification strategies
Meeting Room 1 (3F)	**Network Structure 1**	Quoc Hoan Tran, Van Tuan Vo, and Yoshihiko Hasegawa	Scale-variant topological portraits of complex networks
Chair: Jean-Gabriel Young		Takayuki Hiraoka and Koji Oishi	Genealogical network analysis of social group evolution
		Chihiro Noguchi and Tatsuro Kawamoto	Robustness of spectral clustering for networks with an overlapping community structure
		Ivana Bachmann, Francisco Sanhueza and Javier Bustos-Jiménez	Space geometry effect over the Internet as a physical-logical interdependent network
Meeting Room 2 (3F)	**Temporal**	Radosław Michalski, Jaroslaw Jankowski, and Piotr Bródka	Sequential seeding in temporal networks
Chair: Hiroshi Kori		Hartmut Lentz, Andreas Koher, James Gleeson, and Philipp Hövel	Epidemic spreading on temporal networks - a contact-based model
		Kashin Sugishita, Mason Porter, Mariano Beguerisse-Diaz, and Naoki Masuda	Opinion dynamics in tie-decay networks
		Maddalena Torricelli, Márton Karsai, and Laetitia Gauvin	Event embedding for temporal networks
Meeting Room 3 (3F)	**Brain**	Hardik Rajpal, Matthew Fredericks, Pedro Mediano, Fernando Rosas, Stefan Brugger, and Henrik Jeldtoft Jensen	Network and other higher order measures in the brain: lessons from a study of schizophrenia
Chair: Carlo Vittorio Cannistraci		Makoto Fukushima and Kenji Leibnitz	Simulating packet-based communication on brain structural networks
		Tommaso Gili, Andrea Gabrielli, Guido Caldarelli, Fabrizio Piras, Gianfranco Spalletta, and Rossana Mastrandrea	Functional brain network topology maps the dysfunctional substrate of schizophrenia
		Hao Wang and Linyuan Lü	Higher-order morphorspace in individual myelin-based brain network
Invited [Monday Jan. 20, 2020 -- 14:00-14:30]			**Chair: Guido Caldarelli**
Ibuka Auditorium (1F)	**Invited**	Misako Takayasu	Modeling of the business transaction network in Japan and its practical applications
Contributed Session 2 [Monday Jan. 20, 2020 -- 14:40-16:00]			
Ibuka Auditorium (1F)	**Social**	Guido Caldarelli, Rocco De Nicola, Fabio Del Vigna, Marinella Petrocchi, and Fabio Saracco	The role of bot squads in the political propaganda on Twitter
Chair: Irena Vodenska		Amirhossein Farzam, Parham Moradi, Zahra Padar, Mahdi Sarikhani, and Kosar Karimipour	Collective identity and social bots in Farsi Twitter

		Jia-Rong Xie, Gang Yan, Jiachen Sun, Xiao Ma, and Yanqing Hu	Unexpectedly high capacity and extremely unbalanced discursive power of social media networks to spread information
		Diego Fregolent Mendes de Oliveira and Kevin S. Chan	Competition and spreading of low and high quality information in online social networks
Meeting Room 1 (3F)	**Network Structure 2**	Ignacio Morer, Alessio Cardillo, Albert Diaz-Guilera, Luce Prignano, and Sergi Lozano	Comparing spatial networks: a 'one size fits all' efficiency-driven approach
Chair: Takayuki Hiraoka		Michael Wilsher, Carl P. Dettmann and A.J. Ganesh	Connectivity of 1-dimensional Soft Random Geometric Graphs
		Serafino Matteo, Giulio Cimini, Amos Maritan, Samir Suweis, Jayanth Banavar, and Guido Caldarelli	Scale-free networks revealed from finite-size scaling
		Pim van der Hoorn, Dmitri Krioukov, Gabor Lippner, and Will Cunningham	Ollivier curvature in random geometric graphs on Riemannian manifolds
Meeting Room 2 (3F)	**Synchrony and Dynamics**	Ilja Rausch, Yara Khaluf, and Pieter Simoens	Network motifs and collective decision-making
Chair: Yohsuke Murase		Young Sul Cho	Concurrent formation of nearly synchronous clusters in each intertwined cluster set with parameter mismatches
		Per Sebastian Skardal and Alex Arenas	Higher-order interactions in complex networks of phase oscillators promote abrupt synchronization switching
		Hiroshi Kori	Noise stability and persistence of synchrony in a power grid model
Meeting Room 3 (3F)	**Biological and Chemical**	Boris Podobnik, Dean Korosak, Masa Skelin Klemen, Andraz Stozer, Jurij Dolensek, Marjan Slak Rupnik, Plamen Ch. Ivanov, Petter Holme, and Marko Jusup	B-cells operate collectively to help maintain glucose homeostasis
Chair: Tommaso Gili		Alessandro Muscoloni, Ilyes Abdelhamid, and Carlo Vittorio Cannistraci	Local-community network automata modelling based on length-three-paths for prediction of complex network structures in protein interactomes and food webs
		Takashi Okada, Je-Chiang Tsai, and Atsushi Mochizuki	Origin of adaptation and modularity in chemical reaction networks
		Wilmer Leal, Eugenio Llanos, Andrés Bernal, Guillermo Restrepo, Duc Luu, Juergen Jost, and Peter F. Stadler	Exploring the hypergraph structure underlying the chemical space
Keynote/Invited [Tuesday Jan. 21, 2020 -- 9:00-10:30]			**Chair: Jesus Gómez-Gardeñes**
Ibuka Auditorium (1F)	**Keynote**	Meeyoung Cha	Current challenges in computational social science: Fake news and robot rights
	Invited	Petter Holme	The big science of small networks
Contributed Session 3 [Tuesday Jan. 21, 2020 -- 11:00-12:20]			
Ibuka Auditorium (1F)	**Urban**	Riccardo Gallotti, Giulia Bertagnolli, and Manlio De Domenico	Disentangling activity-aware human flows reveals the hidden functional organization of urban systems
Chair: Gourab Ghoshal		Mark He, Shankar Bhamidi, Joey Glasser and Nikhil Kaza	Intertemporal community detection in bikeshare networks
		Andrew Elliott, Stephen Law, and Luis Ospina-Forero	Characterising road networks through subgraph graphlet analysis
		Sakil Chowdhury, Laurent Hébert-Dufresne, and Jeff Frolik	Effective implementation of energy aware polarization diversity for iot networks using eigenvector centrality
Meeting Room 1 (3F)	**Network Models and Percolation**	Ivan Voitalov, Pim van der Hoorn, and Dmitri Krioukov	Weighted hypersoft configuration model with power-law degree and strength distributions
Chair: Xiaoke Xu		Andrea Gabrielli, Rossana Mastrandrea, Guido Caldarelli, and Giulio Cimini	Grand canonical ensemble of weighted networks

		John Ring, Jean-Gabriel Young, and Laurent Hébert-Dufresne	Connected graphs with a given degree sequence: efficient sampling, correlations, community detection and robustness
		Jung-Ho Kim and Kwang-Il Goh	K-selective percolation on complex networks
Meeting Room 2 (3F)	**Dynamics 1**	Takuma Narizuka and Yoshihiro Yamazaki	Burstiness for adjacency relationships in a Vicsek model
Chair: Oriol Artime		Huijuan Wang, Cunquan Qu, and Wioletta Ruszel	Self-avoiding pruning random walk on signed network
		Sungmin Lee, Kyu-Min Lee, and Kwang-Il Goh	Emergent complexity in dynamics on signed networks
		Guilherme Ferraz de Arruda, Giovanni Petri, and Yamir Moreno	Social contagion models on hypergraphs
Meeting Room 3 (3F)	**Epidemic**	Li Pi, Ceire Costelloe, and Paul Expert	Exploring carbapenem resistant enterobacteriaceae infections in imperial college healthcare trust: a network analysis using individual patient movement data
Chair: Marko Jusup		Daniela Perrotta, Enrique Frias-Martinez, Miguel Luengo-Oroz, Daniela Paolotti, Michele Tizzoni, and Alessandro Vespignani	Harnessing cell phone traces to model the spread of Zika in Colombia
		S. Jalil Kazemitabar and Arash A. Amini	Approximate identification of the optimal epidemic source in complex networks
		Minjae Jo, Bukyoung Jhun, and Byungnam Kahng	Hybrid phase transition of simplicial SIS model in scale-free uniform hypergraph
Invited [Tuesday Jan. 21, 2020 -- 13:50-14:50]			**Chair: Naoki Masuda**
Ibuka Auditorium (1F)	**Invited**	Shlomo Havlin	Some applications of network science
	Invited	Byungnam Kahng	Hybrid phase transitions in complex systems
Contributed Session 4 [Tuesday Jan. 21, 2020 -- 15:20-16:40]			
Ibuka Auditorium (1F)	**Innovation**	Michael Park and Russell Funk	A first look at the relationship between the network of lobbying and innovation in high-tech industries
Chair: Sang Hoon Lee		Nagi Moriya, Tomomi Kito, and Junichi Yamanoi	Patent opposition network: adversarial interactions of companies and trend of innovation
		Sofia Dokuka, Kate Furman and Alex Furman	Gender imbalance in organization: females contribute to teamwork, while males increase skills
		Dion O'Neale, Steven Turnbull, and Kirsten Locke	Using network science to understand student pathways in and through STEM education
Meeting Room 1 (3F)	**Inference**	Nima Dehmamy, Albert-László Barabási, and Rose Yu	Learning network structure using graph convolutional networks
Chair: Laurent Hébert-Dufresne		Jean-Gabriel Young, George T. Cantwell, and M. E. J. Newman	Efficient and fully bayesian inference of complex networks from noisy data
		Fang Zhou, Manuel Mariani, and Linyuan Lü	Inferring individual influence and susceptibility in social networks from multiple cascade data
		Paolo Bertolotti, Ali Jadbabaie, and Fotini Christia	Tests for network cascades via branching processes
Meeting Room 2 (3F)	**Dynamics 2**	Akira Ishii, Nozomi Okano, Yuki Horio, and Yasuko Kawahata	Opinion dynamics theory including both trust and distrust in human relations
Chair: Huijuan Wang		Hiroki Sayama and Junichi Yamanoi	Beyond social fragmentation: coexistence of cultural diversity and structural connectivity is possible with social constituent diversity
		Alberto Aleta and Yamir Moreno	The dynamics of collective social behavior in a crowd controlled game: Twitch plays Pokémon

		Koji Oishi and Kentaro Sakuwa	Evolution of alliance and rivalry networks in international relations
Meeting Room 3 (3F)	**Application**	Larry Zhang, Nichol Castro, Trevor Cohen, and Reza Hosseini Ghomi	Probing speech generation via semantic fluency networks in aging populations as a proxy of dementia and Alzheimer's disease
Chair: Daniela Perrotta		Shilun Zhang, Matus Medo, Linyuan Lv and Manuel Sebastian Mariani	Anticipators of rising and declining popularity trends in socio-economic systems
		Cailean Osborne, Patrick Gildersleve, and Scott Hale	Navigating historical events through Wikipedia's link structure: a comparative analysis of article networks in 6 language editions
		Sudarshan Kumar, Tiziana Di Matteo, and Anindya Chakrabarti	Distress spillover on complex networks with feedback loops
Keynote/Invited [Wednesday Jan. 22, 2020 -- 9:00-10:30]			**Chair: Tao Jia**
Ibuka Auditorium (1F)	**Keynote**	Alain Barrat	Temporal contact networks
	Invited	Linyuan Lü	Vital nodes identification in complex networks
Contributed Session 5 [Wednesday Jan. 22, 2020 -- 11:00-12:20]			
Ibuka Auditorium (1F)	**Game Theory**	Soya Miyoshi, Marko Jusup, and Petter Holme	Modeling the evolution of vaccine hesitancy
Chair: Sadamori Kojaku		Xingru Chen and Fu Feng	Network-based approach to identify bridges and catalysts for persistent cooperation in the iterated prisoner's dilemma
		Jesus Gomez-Gardeñes, Clara Granell, Benjamin Steinegger, and Alex Arenas	Prevalence oscillations triggered by human prophylaxis driven by risk perception
		Alessio Cardillo and Naoki Masuda	Critical mass effect in evolutionary games on networks triggered by zealots
Meeting Room 1 (3F)	**Multilayer**	Piotr Bródka, Anna Chmiel, Matteo Magnani, and Giancarlo Ragozini	Quantifying layer similarity in multiplex networks
Chair: Maksim Kitsak		Michael Danziger and Albert-László Barabási	Recovery coupling of multilayer networks
		Marya Bazzi, Lucas Jeub, Mason Porter, Alex Arenas, and Sam Howison	A framework for the construction of generative models for mesoscale structure in multilayer networks
		Dahae Roh and Kwang-Il Goh	Entropy production in majority-vote model on multiplex networks
Meeting Room 2 (3F)	**Time Series and Prediction**	Marcin Waniek, Kai Zhou, Yevgeniy Vorobeychik, Esteban Moro, Tomasz Michalak, and Talal Rahwan	How to hide one's relationships from link prediction algorithms
Chair: Teruyoshi Kobayashi		Tao Jia, Yijun Ran, and Xiaoke Xu	The upper bound of link prediction by the AUC measure
		Giovanni Petri and Samuel Scarpino	Path entropy identifies predictability horizons
		Michael Small and Debora Correa	Testing networks from time series: when is a network an adequate description of nonlinear dynamics?
Meeting Room 3 (3F)	**Robustness and Resilience**	Romeil Sandhu and Ji Liu	Maxwell's demon: controlling entropy via discrete Ricci flow over networks
Chair: Zi-ke Zhang		Yang Lou, Guanrong Chen, and Lin Wang	Towards optimal robustness of network controllability: an empirical necessary condition on node degrees
		Sergio Faci-Lázaro, Jordi Soriano Fradera, and Jesus Gomez-Gardeñes	Functional resilience of cultured neuronal networks
		Yamir Moreno	Biodiversity and structural stability of multilayer ecological networks
Invited [Wednesday Jan. 22, 2020 -- 13:50-14:20]			**Chair: Alex Arenas**
Ibuka Auditorium (1F)	**Invited**	Manlio De Domenico	

Contributed Session 6 [Wednesday Jan. 22, 2020 -- 14:30-15:50]

Ibuka Auditorium (1F) Success	Marc Santolini, Leo Blondel, Abhijeet Krishna, Emma Barme, Megan Palmer, and Albert-László Barabási	A large scale analysis of collaboration and innovation in an international science and engineering competition
Chair: Marya Bazzi	Orsolya Vasarhelyi, Igor Zakhlebin, Stasa Milojevic, and Agnes-Emoke Horvat	Gender diversity in collaboration networks and the online popularity of scientists
	Taekho You, Jinseo Park, June-Young Lee, Jinhyuk Yun, and Woo-Sung Jung	Comparing quality of questionable journals in academic ecosystem
	Riccardo Gallotti and Manlio De Domenico	Collective effects of individual decisions -- the case of the Nobel prize
Meeting Room 1 (3F) Embedding	Maksim Kitsak and Dmitri Krioukov	Cross-geometric framework for complementarity-driven networks
Chair: Michael Danziger	Yanchen Liu, Nima Dehmami, and Albert-László Barabási	Topological characterization of 3D graph embedding landscapes using the graph linking number
	Olivier Guin, Roland Molontay, and Marcell Nagy	Comparing structural feature-based and graph embedding-based network classification methods
	Takeshi Hase and Masanori Shimono	Neural network embedding of real neuronal networks
Meeting Room 2 (3F) Cascade	Oriol Artime and Manlio De Domenico	Cascade-based attacks on multilayer networks
Chair: Michael Small	Tomokatsu Onaga, Fabio Caccioli, and Teruyoshi Kobayashi	Modelling fire sales as heterostate dynamical processes on bipartite networks
	Yafei Zhang, Lin Wang, Jonathan Zhu, and Xiaofan Wang	The virality and growth of cascades
	Shaunette Ferguson, Sadamori Kojaku, and Teruyoshi Kobayashi	Diurnal dynamics of financial systemic risk
Meeting Room 3 (3F) Community	Andrew Elliott, Angus Chiu, Marya Bazzi, Gesine Reinert, and Mihai Cucuringu	Core–periphery structure in directed networks
Chair: Alessio Cardillo	Vaiva Vasiliauskaite and Tim Evans	Making communities show respect for order
	Christopher Blöcker and Martin Rosvall	Mapping flow in bipartite networks
	Aditya Tandon and Santo Fortunato	Fast consensus clustering in complex networks

Keynote [Wednesday Jan. 22, 2020 -- 16:20-17:20] Chair: Kwang-Il Goh

Ibuka Auditorium (1F) Keynote	Albert-László Barabási	Taming Complexity: From networks to brain control