

PROGRAM AT A GLANCE

MONDAY

8:30	Registration
9:00	Opening Remarks
9:30	Mason Porter
10:15	Contributed Talks A1
11:00	Coffee break
11:30	Manlio de Domenico
12:15	Contributed Talks A2
12:45	Ignite Talks A
13:15	Lunch break
15:15	Philipp Hövel
16:00	Contributed Talks A3
17:00	Coffee break
17:30	Contributed Talks A4

SESSIONS END: 18:30

TUESDAY

9:00	Susanna Manrubia
9:45	Contributed Talks B1
11:00	Coffee break
11:30	Antoine Allard
12:15	Contributed Talks B2
12:45	Ignite Talks B
13:15	Lunch break
15:15	Eugene Stanley
16:00	Contributed Talks B3
17:00	Poster Session & Beers

SESSIONS END: 19:30

MONDAY

CONTRIBUTED TALKS A1

Joseph O'Brien
Fabrizio Lillo
Marcos Oliveira

CONTRIBUTED TALKS A2

Elisenda Ortiz
Ivan Voitalov

IGNITE TALKS A

Gorka Zamora-López
Javier Borge-Holthoefer
Diego F. Mendes de Oliveira
Samuel Heroy
Alberto Antonioni
Floriana Gargiulo

CONTRIBUTED TALKS A3

Kwang-Il Goh
Rita Maria del Rio Chanona
Sergi Lozano
Cristina Masoller

CONTRIBUTED TALKS A4

Samin Aref
Estefanía Estévez
Adriaan Ludl
Matthieu Gilson

TUESDAY

CONTRIBUTED TALKS B1

Joaquin Goñi
Elohim Reis
Vrushali Dipak Fangal

Giuseppe Mangioni
Francesca Vianello

CONTRIBUTED TALKS B2

Duan-Shin Lee
Nahid Azimi-Tafreshi

IGNITE TALKS B

Timoteo Carletti
George Bassel
Robert Krause
Ignacio Tamarit
Jordi Nin
Eugenio Valdano

CONTRIBUTED TALKS B3

Lucas Lacasa
Sergio Cobo-López
Marta Sales-Pardo
Leto Peel

WEDNESDAY

9:00	James Gleeson
9:45	Contributed Talks C1
11:00	Coffee break
11:30	Sonia Kefi
12:15	Contributed Talks C2
12:45	Ignite Talks C
13:15	Lunch break
15:15	Raissa d'Souza
16:00	Contributed Talks C3
	SOCIAL EVENT:
17:00	Guided Tour
20:00	Cocktail dinner

SESSIONS END: 17:00

SOCIAL EVENTS END: 22:00

THURSDAY

9:00	Chiara Poletto
9:45	Contributed Talks D1
11:00	Coffee break
11:30	Roger Guimerà
12:15	Contributed Talks D2
12:45	Ignite Talks D
13:15	Lunch break
15:15	Marta González
16:00	Contributed Talks D3
17:00	Coffee Break
17:30	Contributed Talks D4
18:30	Closing Remarks

SESSIONS END: 19:00

WEDNESDAY

CONTRIBUTED TALKS C1

Ivan Bonamassa
Per Sebastian Skardal
Hong-Lan Botterman
Mattia Frasca
José F. Mendes

CONTRIBUTED TALKS C2

Javier Borge-Holthoefer
Sanja Selakovic

IGNITE TALKS C

Juan Fernández-Gracia
William Grant
Sergi Valverde
Toshihiro Tanizawa
Benjamin Maier
Albert Solé-Ribalta

CONTRIBUTED TALKS C3

Jan Nagler
Giacomo Rapisardi
Andrea Santoro
Jacobo Aguirre

THURSDAY

CONTRIBUTED TALKS D1

David Soriano-Paños
Benjamin Maier
Frank Schlosser
Iacopo Iacopini
Clara Jongen

CONTRIBUTED TALKS D2

Giulia Bertagnoli
Christophe Letellier

IGNITE TALKS D

Nahuel Almeida
Mattia Mazzoli
Aleix Bassolas
Luciano Grácio
Ronaldo Menezes
Oriol Artime

CONTRIBUTED TALKS D3

Albert Díaz-Guilera
Aleix Bassolas
Fabian Ying
Emanuele Cozzo

CONTRIBUTED TALKS D4

Alessio Cardillo
Ali Fageeh
Malbor Asllani
Pablo Amil

MONDAY

8:30 REGISTRATION

9:00 OPENING REMARKS

9:30 INVITED TALK

Mason Porter. Networks, Politics, and Voting

10:15 CONTRIBUTED TALKS

Joseph D. O'Brien. The Effects of Memory and Innovation on Random Copying Mechanisms

Fabrizio Lillo. A dynamic network model with persistent links and node-specific latent variables, with an application to the interbank market

Marcos Oliveira. Dynamics of child sexual abuse in the dark web

11:00 COFFEE BREAK

11:30 INVITED TALK

Manlio De Domenico. Collective behavior in socio-technical systems during exceptional events

12:15 CONTRIBUTED TALKS

Elisenda Ortiz. Geometric randomization of complex networks with prescribed degree sequence

Ivan Voitalov. Scale-free Networks Well Done

12:45 IGNITE TALKS

Gorka Zamora-López. Interpreting and comparing the length of complex networks

Javier Borge-Holthoefer. The Contagion Effects of Repeated Activation in Social Networks

Diego Fregolente Mendes de Oliveira. Sorting information by quality as a mechanism to hinder the system's discriminative power

Samuel Heroy. Rigidity Percolation in Disordered Fiber Systems

Alberto Antonioni. Coevolution of synchronization and cooperation in costly networked interactions

Floriana Gargiulo. Political fingerprints in the world trade market.

13:15 LUNCH ON YOUR OWN

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- 15:15 INVITED TALK
Philipp Hövel. Understanding trends and popularity in online topics
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- 16.00 CONTRIBUTED TALKS
Kwang-Il Goh. Majority-vote dynamics on multiplex networks
Rita Maria del Rio Chanona. The Multiplex Nature of Global Financial Contagion
Sergi Lozano. Comparing spatial networks: A 'one size fits all' efficiency-driven approach
Cristina Masoller. Quantifying diversity in multiplex networks
- 17:00 COFFEE BREAK
- 17:30 CONTRIBUTED TALKS
Samin Aref. Applications of the frustration index in signed networks
Estefanía Estévez. Resilience Mechanisms in cultured neuronal networks.
Adriaan Ludl. Inference of Directed Networks from Neuronal Activity Patterns
Matthieu Gilson. Analysis of complex network dynamics: A new framework based on communicability and flow.

TUESDAY

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- 9:00 INVITED TALK
Susanna Manrubia. On the networked architecture of genotype spaces and the dynamics of molecular evolution
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- 9.45 CONTRIBUTED TALKS
Joquin Goñi. Personalized brain connectomics: from maximizing subjects identifiability to disentangling heritability and environment traits.
Elohim Reis. Immune state networks of wild and laboratory mice
Vrushali Dipak Fangal. Predicting Novel Drug Targets and Resistance Mechanisms in Cancer by Discrete Dynamic Network Modeling
Giuseppe Mangioni. Multilayer flows in molecular networks identify biological modules in the human proteome
Francesca Vianello. From Atomistic Descriptions to Protein-Protein Interaction Networks

11:00 COFFEE BREAK

11:30 INVITED TALK

Antoine Allard. Three tales about percolation on real complex networks

12:15 CONTRIBUTED TALKS

Duan-Shin Lee. A Generalized Configuration Model with Degree Correlations

Nahid Azimi-Tafreshi. Generalization of Core Percolation on Complex Networks

12:45 IGNITE TALKS

Timoteo Carletti. Patterns of Non-Normality in Networked Systems

George Bassel. Network-based analysis of multicellular complexity and evolution

Robert Krause. Missing Data Augmentation for Bayesian Multiplex ERGMs

Ignacio Tamarit. Dunbar's numbers, negative relationships, and social structure: Models and experiments

Jordi Nin. Graph Convolutional Networks on Customer/Supplier Graph Data to Improve Default Prediction

Eugenio Valdano. Exact rank-reduction of network models

13:15 LUNCH ON YOUR OWN

15:15 INVITED TALK

Eugene Stanley. TBA.

16:00 CONTRIBUTED TALKS

Lucas Lacasa. Can we unfold a multiplex network if only an aggregated projection is observable?

Sergio Cobo-López. Statistical inference in bipartite networks

Marta Sales-Pardo. Tensorial and bipartite block models for link prediction in layered networks and temporal networks

Leto Peel. Community detection in networks with unobserved edges

17:00 POSTER SESSION & BEERS [SESSION SPONSORED BY COMPLEXITY]

WEDNESDAY

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- 9:00 INVITED TALK
James Gleeson. Mathematical modeling of social spreading phenomena
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- 9:45 CONTRIBUTED TALKS
Ivan Bonamassa. Towards a physical theory of interdependent interactions
Per Sebastian Skardal. Nonlinear Random Walks on Complex Networks
Hong-Lan Botterman. Combining path-constrained random walks to recover link weights in heterogeneous information networks
Mattia Frasca. Techniques for the control of synchronization of groups of nodes in complex networks
José F. Mendes. Structural stability of interaction networks against negative external fields
- 11:00 COFFEE BREAK
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- 11:30 INVITED TALK
Sonia Kéfi. The dynamics and resilience of ecological networks
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- 12:15 CONTRIBUTED TALKS
Javier Borge-Holthoefer. High-order nestedness and the structure of site-species-species hypernetworks
Sanja Selakovic. Ecological multiplex interactions determine the role of species for parasite spread amplification
- 12:45 IGNITE TALKS
Juan Fernández-Gracia. Inferring social relations from presence data. Manta Rays case study
William Grant. Systematic identification of protein structure domains using Infomap and GLOSIM
Sergi Valverde. The architecture of mutualistic networks as an evolutionary spandrel
Toshihiro Tanizawa. Constructing directed networks from multivariate time series using linear modeling technique
Benjamin Maier. Tacoma — A C++/Python-package for temporal network analysis
Albert Solé-Ribalta. Decongestion of urban areas with hotspot-pricing

13:15 LUNCH ON YOUR OWN

15:15 INVITED TALK

Raissa d'Souza. Collective behaviors at three scales: nanoscale oscillators, critical infrastructure, and macaque societies.

16:00 CONTRIBUTED TALKS

Jan Nagler. Unfair and Anomalous Evolutionary Dynamics from Fluctuating Payoffs

Giacomo Rapisardi. Multiple structural transition in interacting networks

Andrea Santoro. Information-theoretic complexity of multiplex networks

Jacobo Aguirre. Competition among networks highlights the power of the weak

17:00 SOCIAL EVENT: GUIDED TOUR OF THE ROMAN TARRACO

20:00 SOCIAL EVENT: COCKTAIL DINNER AT CASA MIRET

THURSDAY

9:00 INVITED TALK: SPRINGER COMPLEXITY SEMINAR.

Chiara Poletto. Multi-pathogen co-circulation on networks: capturing the complexity of pathogen ecology.

9:45 CONTRIBUTED TALKS

David Soriano-Paños. Non-trivial phenomena in the spread of diseases across real metapopulations

Benjamin Maier. Revealing individual contact activity from face-to-face contact data using a new class of dynamic network models

Frank Schlosser. Inference of Disease Outbreak Origins using Human Mobility Data

Iacopo Iacopini. Simplicial models of social contagion

Clara Jongen. Context specific role of airports in global disease dynamics

11:00 COFFEE BREAK

11:30 INVITED TALK

Roger Guimerà. Bayesian network inference for prediction in network and non-network systems: From human behavior to machine scientists.

- 12:15 CONTRIBUTED TALKS
Giulia Bertagnolli. Statistical Data Depths for Complex Networks
Christophe Letellier. Assessing observability of complex networks using symbolic observability coefficients
- 12:45 IGNITE TALKS
Nahuel Almeida. Understanding complex networks fragility through centrality-based attacks
Mattia Mazzoli. A network approach to airports mobility and epidemic spreading of airborne viruses
Aleix Bassolas. Mobile phone records to feed activity-based travel demand models: MATSim for studying a cordon toll policy in Barcelona
Luciano Grácio. An efficient approach for counting occurring induced sub-graphs
Ronaldo Menezes. Social Media Vocabulary Reveals Education Attainment of Populations
Oriol Artime. Cascade-based attacks on multilayer networks
- 13:15 LUNCH ON YOUR OWN
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- 15:15 INVITED TALK
Marta González. Cases of study in Computational Urban Science.
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- 16:00 CONTRIBUTED TALKS
Albert Díaz-Guilera. Infrastructures connecting people. A mechanistic model for terrestrial transportation networks.
Aleix Bassolas. Scaling in the recovery of cities from special events
Fabian Ying. Customer mobility and congestion in supermarkets
Emanuele Cozzo. Collective identities in Twitter: a graph-theoretical approach
- 17:00 COFFEE BREAK
- 17:30 CONTRIBUTED TALKS
Alessio Cardillo. Unveiling zebrafish's hindbrain activity during active locomotion: a network perspective
Ali Fageeh. Characterizing the analogy between hyperbolic embedding and community structure of complex networks
Malbor Asllani. The structure and dynamics of non-normal networks
Pablo Amil. Retinal fundus image analysis and classification using complex networks tools
- 18:30 CLOSING REMARKS

POSTER LIST

- **Panteleimon Loupos.** The Structure and Evolution of an Offline Peer-to-Peer Financial Network.
- **Ismo Koponen.** Modelling students' thematically associated knowledge: Networked knowledge from affinity statistics.
- **Kimitaka Asatani.** Interpersonal relationship in large-scale mobility data.
- **María Palazzi.** Coexisting Mesoscale Patterns in Complex Networks.
- **Erica Metheney.** Efficiency of Generating Graphic Degree Sequences Using Heavy-tailed Distributions.
- **Diego F. M. Oliveira.** Spread and control of misinformation with heterogeneous agents.
- **Haizhong An.** Structure of Global Energy Investment, Competition and Cooperation: Based on a Heterogeneous Complex Networks Model.
- **Nora S. Martin.** A Coarse-Grained Network Description of Protein Tertiary Structure.
- **Qian Liu.** A Motif-Based Analysis to Reveal Local Implied Information in Cross-shareholding Networks.
- **Huajiao Li.** Important institutions of interinstitutional scientific collaboration networks in materials science.
- **Quang Nguyen.** Dynamic topology and allometric scaling behavior on the Vietnamese stock market.
- **Salva Duran-Nebreda.** Exploring tissue architectural complexity in *Arabidopsis thaliana*.
- **Josep Sardanyés.** Noise-induced bistability in the fate of cancer phenotypic quasispecies: a bit-strings approach.
- **Hiroki Sayama.** Diversity of Cultural Tolerance Helps Maintain Culturally Diverse Yet Structurally Connected Society.
- **Luce Prignano.** Chance, biases, and data incompleteness. Uncovering Patterns in Mediterranean Connectivity in Roman Time.
- **Somayeh Sadat Hashemi Kamangar.** Personalized Educational Package for L2 Learners Using Their L1 Mental Lexical Network.
- **Audrey Wilmet.** Multidimensional Outlier Detection in Interaction Data: Application to Political Communication on Twitter.
- **Lotfollah Najjar.** Exploratory factor analysis of graphical features for link prediction in social networks.

- **Irene Sendiña-Nadal.** Observability of an experimental network of electronic circuits.
- **Gergely Szlobodnyik.** Reachability analysis of discrete state epidemiological models.
- **Zakariya Ghalmane.** Ranking the Nodes in Modular Networks.
- **Marissa Sumathipala.** Network Medicine Framework for miRNA-based Disease Subtyping.
- **Oleg Maslennikov.** Hierarchical transitions in scale-free networks of coupled Stuart-Landau oscillators: Effects of structure-dynamics correlation.
- **Mariana Macedo.** Swarm Intelligence: the Metaphor Explained by Network Science.
- **Barbara Benigni.** Exploring the interplay between brain and mind in Alzheimer's disease.
- **Rodrigo Leal-Cervantes.** Revisiting the equivalence between modularity maximization and maximum likelihood methods for community detection.
- **Josefine Bohr Brask.** Evolution of cooperation in networks: degree assortment and initial positions of cooperators.
- **Ivan Kryven.** Distribution of cluster sizes in the configuration model with coloured edges.
- **Adriana Reyna Lara.** Explosive behavior in nonlinear random walks on complex networks.
- **Francisco Bauzá.** Comparison between communities and departmental structure in academic collaboration networks.
- **Sergio Faci-Lázaro.** Synchronization in Spatial Neuronal Networks.
- **Sahar Abi-Hassan.** Specialization or Generalization: The Evolution of Ties within U.S. Supreme Court Advocacy.
- **Chengyuan Han.** The Winner Takes it All - Modeling the Emergence of Trade Networks Through Individual Decisions.
- **Maxime Lucas.** Synchronisation in nonautonomously driven network.
- **Jordi Piñero.** Statistical physics of liquid brains.
- **Violeta Calleja Solanas.** Higher-order vs. structured interactions in competitive ecosystems.
- **Juan Fernández-Gracia.** Co-Occurrence plasticity increases modularity and stability in bipartite networks.
- **Feng An.** Topological properties of the nodes in multiple-spreading-mechanisms-coexisted social systems – from network of network perspective

CHAIRS

We would like to thank the following participants for having chaired these sessions:

MONDAY

9:30 - 11:00

Sessions INVITED SPEAKER (M. PORTER) & CONTRIBUTED TALKS A1

Chair [JAMES GLEESON](#)

11:30 - 12:45

Sessions INVITED SPEAKER (M. DE DOMENICO) & CONTRIBUTED TALKS A2

Chair [MARTA SALES-PARDO](#)

15:15-17:00

Sessions INVITED SPEAKER (P. HÖVEL) & CONTRIBUTED TALKS A3

Chair [LUCAS LACASA](#)

17:30 - 18:30

Sessions CONTRIBUTED TALKS A4

Chair [GORKA ZAMORA-LÓPEZ](#)

TUESDAY

9:00 - 11:00

Sessions INVITED SPEAKER (S. MANRUBIA) & CONTRIBUTED TALKS B1

Chair [MASON PORTER](#)

11:30 - 12:45

Sessions INVITED SPEAKER (A. ALLARD) & CONTRIBUTED TALKS B2

Chair [MANLIO DE DOMENICO](#)

15:15-17:00

Sessions INVITED SPEAKER (E. STANLEY) & CONTRIBUTED TALKS B3

Chair [JORDI DUCH](#)

WEDNESDAY

9:00 - 11:00

Sessions INVITED SPEAKER (J. GLEESON) & CONTRIBUTED TALKS C1

Chair [CHIARA POLETTO](#)

11:30 - 12:45

Sessions INVITED SPEAKER (S. KÉFI) & CONTRIBUTED TALKS C2

Chair [JESÚS GÓMEZ-GARDEÑES](#)

15:15-17:00

Sessions INVITED SPEAKER (R. D'SOUZA) & CONTRIBUTED TALKS C3

Chair [EUGENIO VALDANO](#)

THURSDAY

9:00 - 11:00

Sessions INVITED SPEAKER (C. POLETTO) & CONTRIBUTED TALKS D1

Chair [ALBERT DÍAZ-GUILERA](#)

11:30 - 12:45

Sessions INVITED SPEAKER (R. GUIMERÀ) & CONTRIBUTED TALKS D2

Chair [CRISTINA MASOLLER](#)

15:15-17:00

Sessions INVITED SPEAKER (M. GONZÁLEZ) & CONTRIBUTED TALKS D3

Chair [JAVIER BORGE-HOLTHOEFFER](#)

17:30 - 18:30

Sessions CONTRIBUTED TALKS D4

Chair [PER SEBASTIAN SKARDAL](#)