

Tehran school on Theory and Applications of Complex Networks
25-29 August 2018, SBU, Tehran, IRAN
Laser and Plasma Institute Lecture Hall

On Saturday 08:00-08:45 will be registration and 08:45-09:00 will be Opening session

Date and time	Saturday 25 Aug	Sunday 26 Aug	Monday 27 Aug	Tuesday 28 Aug	Wednesday 29 Aug
09:00-10:30	Ghanbarnejad 1	Peixoto 3	Poletto 3	Jafari 1	Roth 3
10:30-11:00	Coffee Break	Coffee Break	Coffee Break	Coffee Break	Coffee Break
11:00-12:30	Ghanbarnejad 2	Peixoto 4	Poletto 4	Jafari 2	Roth 4
12:30-14:00	Pray & Lunch	Pray & Lunch	Pray & Lunch	Pray & Lunch	Pray & Lunch
14:00-15:30	Peixoto 1	Poletto 1	Hands on	Roth 1	Contributed Talk Ghanbarnejad 3
15:30-16:00	Coffee Break	Coffee Break	Coffee Break	Coffee Break	Coffee Break
16:00-17:30	Peixoto 2	Poletto 2	Free Time	Roth 2	Ghanbarnejad 4
17:30-18:00	Projects	Projects		Projects	Concluding Remarks

❖ **Fakhteh Ghanbarnejad (Berlin) (4 sessions):**

- 1) Introduction to network science: structure and dynamics

❖ **Chiara Poletto (Paris)(4 sessions):**

- 1) Introduction to network epidemiology
- 2) Introduction to compartmental models (SIR, SIS, epidemic threshold and vaccination)
- 3) Spreading on networks (heterogeneous mean field approximation, quenched mean field approximation),
- 4) Spreading on temporal network (epidemic dynamics, epidemic threshold)
- 5) Metapopulation models (global invasion threshold, arrival time and effective distance, applications)
- 6) Interacting spreading processes on networks (competition, cooperation)

❖ **Tiago de Paula Peixoto (University of Bath, UK) (4 sessions):**

- 1) Network inference
- 2) The stochastic block model (SBM) and its variants (degree correction, overlapping groups, etc.)
- 3) Bayesian inference and model selection: Distinguishing structure from noise.
- 4) Generalizing from data: Prediction of missing and spurious links.
- 5) Model extensions: Layered, dynamic SBMs, and generalized models on continuous latent spaces.
- 6) Fundamental limits of inference: The undetectability transition.
- 7) Efficient inference algorithms.

❖ **Gholamreza Jafari (SBU) (2 sessions):**

- 1) Dark Networks
- 2) Frustration and aged networks dynamics

❖ **Camille Roth (Berlin) (4 sessions):**

- 1) Introduction to Network Morphogenesis.
- 2) Introduction to Socio-Semantic Networks
- 3) Introduction to Geographical and Urban Mobility Networks