

PROGRAM - Italy-Israel meeting “Let the complex be simple”

Monday, December 1st

8:45 - 9:15 **Registration**

9:15 - 9:40 **Greetings:** Prof. Joseph Klafter President of TAU, Ambassador of Italy to Israel H. E. Francesco Maria Talo', Dr. Honorary Sami Sagol Founder of the Sagol Brain Network, Prof. Uri Ashery Head of the TAU Sagol School of Neuroscience

Presenter: Prof. Eshel Ben-Jacob

Session 1: “From Networks to Organisms and Cancer”

Chairperson: Yael Hanein (Head of TAU Nano Center)

- 9:40-10:10 Stefano Boccaletti (Scientific attache' for the Italian Embassy) “*Parentlitic networks: unraveling new functions in complex biological information*”
- 10:10-10:40 David Harel “*The Full Organism Challenge: Can we Computerize an Elephant?*”
- 10:40-11:10 Ronit Satchi-Fainaro “*Rational design of nano-GPS for cancer theranostics*”

- **Coffee break** -

Session 2: “Unraveling the human brain complexity”

Chairperson: Eshel Ben-Jacob

- 11:30-12:00 Tali Tishby “*Physical and computational limits on the onset of life and cognition*”
- 12:00-12:30 Yaniv Assaf “*Imaging Brain Micro-Structure*”
- 12:30-13:00 Hadile Ounallah-Saad “*Complexity of translation regulation and memory consolidation*”

- **Lunch** -

Session3: “The tantalizing complex plasticity of glasses and flowers”

Chairperson: Stefano Boccaletti

- 14.00-14.30 Roberto Benzi “*The complex dynamics of Soft Glasses*”
- 14.30-15.00 Itamar Procaccia “*Comple plasticity in amorphous solids - why should we care*”
- 15.00-15.30 Eran Sharon “*Shape Transitions in Helical Ribbons – from Seed Pods to Chiral Macromolecules*”

- **Coffee break** –

Closing session: “Meta-networks and the complexity of human networks”

Chairperson: Dror Kenett (Israel representative of EU Econophysics)

- 16.00-16.30 Sorin Solomon “*Self-enhanced complexity - When the system reacts on its own components*”
- 16.30-17.00 Shlomo Havlin “*From single networks to networks of networks*”
- 17.00-17.30 Luciano Pietronero “*Economic Complexity: Measuring the Intangible Growth Potential of Countries*”

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Tuesday, December 2nd

Session1: “Brain complexity”

Chairperson: Ari Barzilai

- 09:30-10:00 Uri Asheri “From single neuron to neuronal network”
- 10:00-10:30 Paolo Bonifazi “Breaking the complexity of brain circuits: Hub cells and chimera networks”
- 10:30-11:00 Yael Hanein “Engineered neuronal circuits: Experimental bottom-up neuroscience”

- Coffee break -

Session2: “Theory and applications of complex networks”

Chairperson: Paolo Bonifazi

- 11:15-11:45 Alessandro Torcini “Clique of functional hubs orchestrates population bursts in developmentally regulated neural networks”
- 11:45-12:15 Ginestra Bianconi “Multilayer networks: structure and dynamics”
- 12:15-12:45 Sebastiano Stramaglia “Network approach for bringing together brain structure and function”

- Lunch -

Session 3: “The complexity of human systems”

Chairperson: Olga Moskalenko

- 13.30-14.00 Rosario Mantegna “Complex networks in socio-economic systems”
- 14.00-14.30 Dror Kenett “Manipulation strategies in financial markets”
- 14.30-15.00 Sheizaf Rafaeli “Collaboration, Crowd and Questions: Handling Human Q&A Online”

- Coffee break -

Session 4: “Man-made and animal complex systems”

Chairperson: Yoash Shapira

- 15:15-15:45 Fabio Dercole “The ecology of asexual pairwise interactions: A generalized law of mass action”
- 15:45-16:15 David Papo “What sort of material is the brain (and why does it matter)?”
- 16:15-16:45 Mattia Frasca “Remote synchronization in complex networks”

- Coffee break -

Closing session: “Defeating cancer by breaking the code of its complexity”

Chairperson: Ronit Satchi-Fainaro

- 17.00-17.30 Dan Peer “New age of personalised nanomedicine”
- 17.30-18.00 Ilan Tsarfaty “The complex plasticity of cancer migration”
- 18.00-18.30 Eshel Ben-Jacob “New hopes to defeat cancer – breaking the code of the cyberwar between cancer and the immune system”

Conclusions and greetings