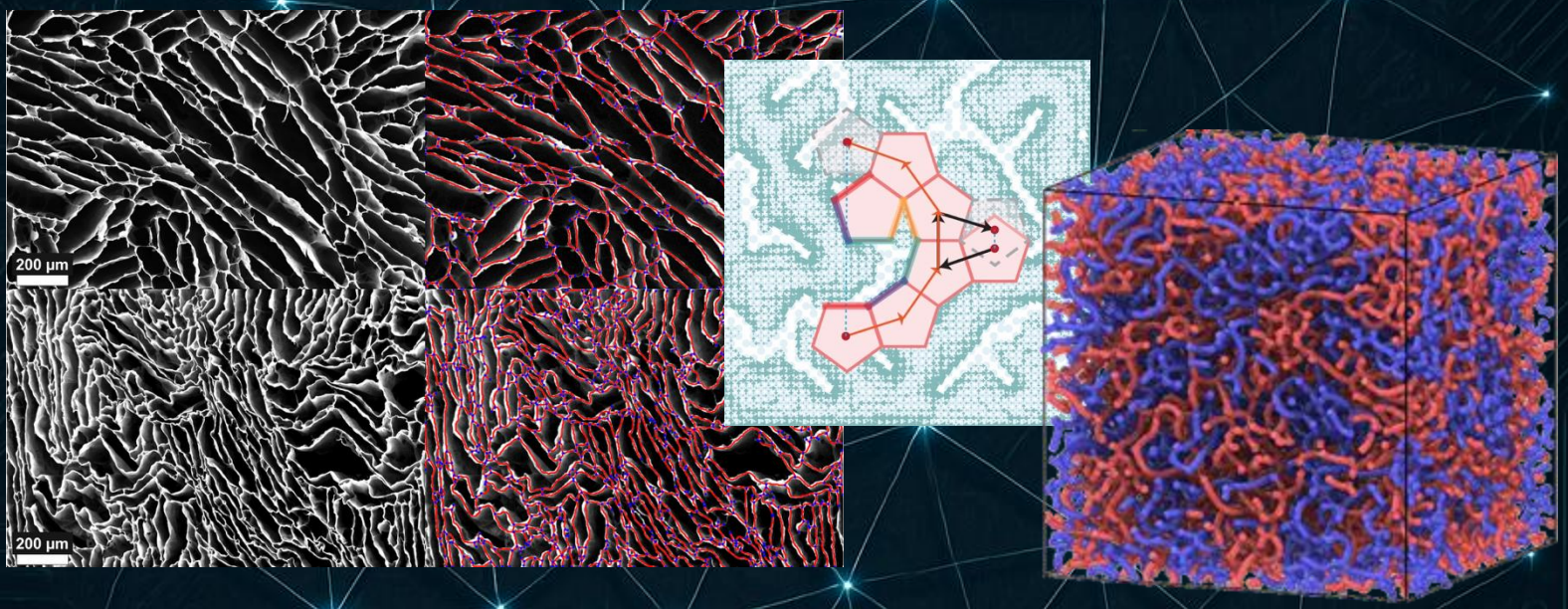
APS Division of Soft Matter
DSOFT

TUTORIAL ON GRAPHS AND NETWORKS FOR COMPLEX MATERIALS I: Fundamental Concepts

8:30 AM-12:30 PM MDT, Sunday, March 15 at the 2026 APS Global Physics Summit
Denver, CO. Organizers: Nicholas Kotov, Xiaoming Mao

- **Istvan Kovacs**,
  Northwestern, Network science
- **Nicholas Kotov**,
  UMich, Complex network materials
- **Xiaoming Mao**,
  UMich, Physical networks
- **Emanuela Del Gado**,
  Georgetown, Gel networks

Tutorial I launches a dive into the mathematical and physical foundations of graph theory and network science as powerful frameworks that are transforming how we understand complex materials. Discover how graph-based descriptors provide a unifying language for complex materials, unlocking functionalities beyond traditional crystal-based approaches.



Who should attend? Graduate students, post-docs and other scientists interested in learning about using graphs and networks to design and assemble materials.
The tutorial will include both fundamental theories and hands on experience with new software tools–Structural GT and Response GT–for network materials engineering.

Registration: Select the tutorial when you register for the APS meeting!
Grad Students/Early Career: $99
APS Members: $175

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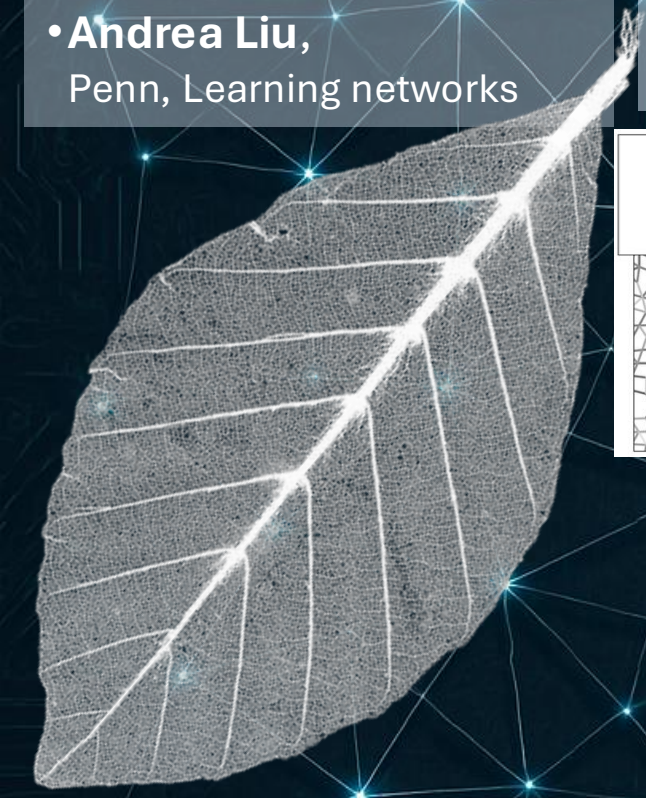
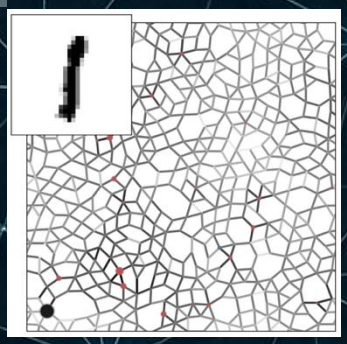
TUTORIAL ON GRAPHS AND NETWORKS FOR COMPLEX MATERIALS II: Biomimetic/Biological Materials, Machine Learning, and Intelligent Materials

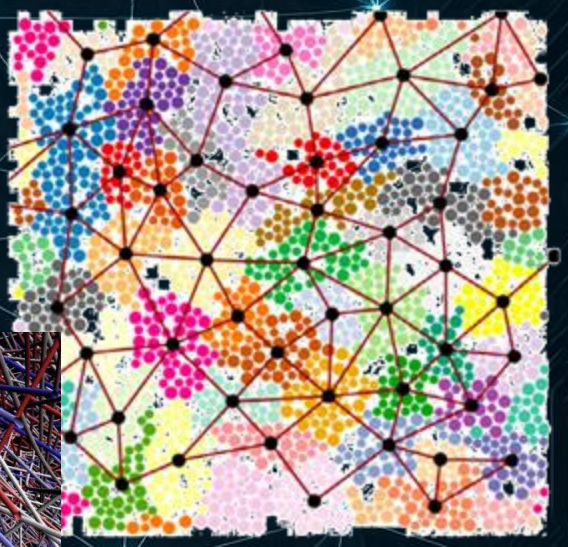
1:30 -5:30 PM MDT, Sunday, March 15 at the 2026 APS Global Physics Summit
Denver, CO. Organizers: Nicholas Kotov, Xiaoming Mao

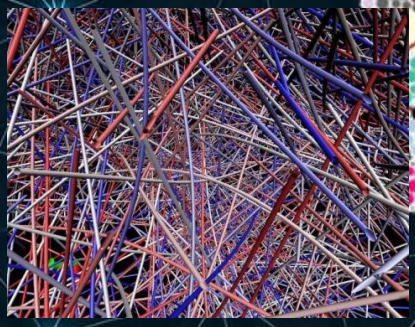
- **Eleni Katifori**,
  Penn, Biological networks
- **Safa Jamali**,
  Northwestern, Gel networks
- **Catalin Picu**,
  RPI, Network mechanics
- **Andrea Liu**,
  Penn, Learning networks

Tutorial II builds on the foundations of graph theory and network science to show how these tools illuminate soft matter, biological systems, and multifunctional materials.
Discover how graph-based descriptors and AI/ML methods reveal hidden structures, essential rules, and design blueprints, accelerating discoveries of complex, intelligent materials.









Who should attend? Graduate students, post-docs and other scientists interested in learning about using graphs and networks to design and assemble materials.
Explore emerging frontiers where network science enables adaptive, information-processing architectures with exceptional, programmable functionalities.

Registration: Select the tutorial when you register for the APS meeting!
Grad Students/Early Career: $99
APS Members: $175