School Session

1. Hiroki Sayama - Title: Artificial Intelligence, Machine Learning, and (Large) Language Models: A Quick Introduction
2. Priodyuti Pradhan - Title: Application of Graph Neural Networks (GNN) in Network Science

Note: There will be a hands-on tutorial on 'Parameter Aware Reservoir computing'

List of Talks

Inaugural Talk (30+5min)

M. Lakshmanan - Title: Networks and Dynamical Systems

Keynote Talks (30+5 min)

1. Samuel Scarpino - Title: Network dynamics and the shape epidemics
2. Osnat Mokryn - Title: Using an interaction-driven contagion model to understand the temporal dynamics of disease spread
3. Stefano Boccaletti - Title: The transition to synchronization of networked dynamical systems
4. Punit Parmananda - Title: Collective dynamics and path navigation of active particles
5. Albert-László Barabási - Title: Understanding the role of physicality in networks
6. Ernesto Estrada - Title: The geometry of dynamics on networks

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Invited Talks (20+5 min)

1. Istvan Kiss   - Title: Emergent Networks and Hypernetworks in Electrochemical Systems
2. Francesco Sorrentino - Title: Energy efficiency of the synchronization dynamics in complex networks
3. Yukie Sano - Title: Data-driven analysis of collective memory and attention on online social media
4. Yong Ee Hou - Title: Modeling Social Networks: Control, Energy, Zealots, and Statistical Dynamics
5. Eun Lee - Title: Exploring Structural Inequalities and Collective Behaviors

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Special Evening Talks (30+5 min)

1. Ram Ramswami - Title: Complexity in the spotlight: Evolving Networks and their Dynamics
2. Adilson E. Motter - Title: Network of Ideas

Focus Session Speakers (15 min)

Focus session 1: Multilayer and Temporal Networks
Chair: Albert Diaz-Guilera; AccelNet-Multinet project)

(15th January, 2025, Afternoon session)

List of Speakers:
1. Janos Kertesz - Title: Multidimensional political polarization in online social networks: A 2-layer analysis
2. Hiroki Sayama - Title: Deriving Dynamical Model Equations from Temporal Network Data Using a Graph Rewriting Framework
3. Divya Sindhu Lekha - Title: Robustness and vulnerability assessment of multilayer networks

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Focus session 2: Asian Network Science
Chairs: Chew Lock Yue, Cheong Siew Ann and Cigdem Yalcin
(16th January, 2025, Forenoon session)

List of Speakers:
1. Michael Small - Title: Networks Down Under: Applications of Network Science in Australia
2. Fatimah Abdul Razak - Title: Navigating Social Networks: Insights from Viral Spread to Film Industry Dynamics
3. Seong Woo Son - Title: Phase Transitions in Growing Complex Networks and Their Applications
4. Cigdem Yalcin - Title: "Gravitational Graph" as a New Approach to Converting Spatio-Temporal Data into Complex Network
5. R. I. Sujith - Title: Network Structure of Transitions in Thermo-fluid Systems in Nature & Engineering

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Focus session 3: Noise, Networks, and Biology
Chair: Manish Shrimali and Vimal Kishore
(15th January, 2025, Afternoon session)

List of Speakers:
1. Jose Antonio Mendez Bermudez- Title: Multilayer directed random networks: Scaling of spectral properties
2. Areejit Samal- Title: Linking Exposome and Health by leveraging Network Science
3. Claus Kadelka - Title:Design principles of gene regulatory networks: a Boolean modeling perspective
4. Anshu Bhardwaj- Title: Understanding and Addressing Complex Diseases through Network Based Approaches

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Focus session 4: Recent advancements in Network Science: under the umbrella of GIPWG IPA
Chair: Anna Zakharova, Camellia Sarkar and Sangeeta Ujjwal
 (17th January, 2025, Forenoon session)

List of Speakers:
1. Introduction by GIPWG IPA
2. Inmaculada Leyva - Title: How complex is to be a hub? Complexity as a proxy for the network degree distribution
3. Fakhteh Ghanbarnejad - Title: Network Science Enhances Our Understanding of the Interplay between Epidemics and Human Mobility

4. Karthik Raman - Title: UNFOLDing Biological Paradoxes: Insights into Robustness, Plasticity, and Multifunctionality of Gene Regulatory Networks
5. Vinay Kumar B R - Title: Community detection on geometric graphs
6. Tiziana di Matteo - Title: Networks' dependency studies in complex data sets and their financial applications
7. Tanmoy Banerjee - Title: Emergent dynamics of networks of quantum oscillators
8. Sudeshna Sinha - Title: Disorder in aid of Order in Network

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Focus session 5: Hypergraphs and Higher-order networks
Chair: Charo I. del Genio
(16th January, 2025, Forenoon session)

List of Speakers:
1. Timoteo Carletti - Title: Turing patterns: from network to higher-order structures
2. Ana P Millán - Title: Triadic percolation induces dynamical topological patterns in higher-order networks
3. Giovanni Petri - Title: Renormalization and Higher-Order Interactions: Bridging Structure and Dynamics in Complex Systems
4. Charo I. del Genio - Title: Hypermodularity and community detection in higher-order networks

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Contributory Talks

S.No.	Name	Title
1	Jnanajyoti Bhaumik	Effects of edge weights on evolutionary dynamics
2	Prathyush Sambaturu	Characterizing H5N1 Spread Among Cattle in the United States Using Temporal Network Modeling and Analysis
3	Igor Kanovsky	Overlapping Communities Detection by Hypergraph Constructing
4	Ayushi Suman	Finite size effect in Kuramoto oscillators with higher order interactions
5	Priyotosh Sil	Biologically Meaningful Regulatory Logic Enhances the Convergence Rate in Boolean Networks and Bushiness of their State Transition Graph
6	Sukankana Chakraborty	Who is driving the conversation? Analyzing the nodality of British MPs and journalists on online platforms
7	Gil Ariel	Epidemics on Evolving Scale-free Graphs are Critical
8	Giulio Cimini	Firm-level systemic risk on reconstructed production networks
9	Sahil Bhandari	Network Analysis of Odour Experiences in Urban Environments: Insights from the Smell Vancouver Project
10	Alessio Catanzaro	Solution and Coarse-graining of Second Order Random Networks
11	Onkar Sadekar	Explosive Cooperation in Social Dilemmas on Higher-Order Networks
12	Abhijit Chakraborty	Correlation tensor spectra for crypto asset transaction networks
13	Andrea Zaccaria	Bipartite networks: tools from Economic Complexity
14	Sayantan Nag Chowdhury	From Spanning Trees to Antiphase: How Mixed Interactions Shape Oscillator Patterns
15	Srilena Kundu	Robustness of ecological communities driven by correlated perturbations
16	Mi Jin Lee	Heterogeneous Popularity of Metabolic Reactions from Evolution
17	Jyoti Jyoti	Evaluating changes in attractor sets under small network perturbations to infer reliable microbial interaction networks from abundance patterns
18	Gourab Ghoshal	Connecting inter-city mobility with urban welfare
19	Tania Ghosh	Advances in Modularity-based Community Detection in Bipartite Networks
20	Samit Bhattacharyya	Unraveling Vaccine Scare Dynamics in Populations Using Complex Network Models and Game Theory
21	Dario Mazzilli	(sub) Optimal Resources Allocation in Complex Systems
22	Gustavo A. Schwartz	Mapping cultural evolution using complex networks. Quantitative insights from Wikipedia's interdisciplinary relationships over five centuries.

23	Claudia Teresa Martínez	Topological and spectral properties of random digraphs
24	Surendra Orupalli	Impact of Node Failures on Productivity in Multi-layered Supply Chain Networks: An Influence Network Analysis in the Indian Electronics Sector
25	Narayan G Sabhahit	Deterministic construction of typical networks in network models
26	Niraj Kushwaha	Using causal network to uncover three types of armed conflict
27	Jesseba Fernando	Functional brain network reorganization during task learning
28	Lokamruth K R	Are Network Science Software Communities a Tangled Web?
29	Sharaj Kunjar	A Network analysis of Intermedia Agenda-setting in the News discourse about the Mpox epidemic
30	Maalavika Pillai	Identification of spurious edges in ChIP-seq derived gene regulatory networks
31	Alyssa April Dellow	Modelling Epidemic Spread and the Effectiveness of Malaysian Movement Control Regimes in Selangor via Social Networks
32	Ola Megahed Ali	Unraveling The Legal Dynamics: A Network Analysis of Legal Status Transitions Among Migrants and Refugees in Austria
33	Chandrakala Meena	Dynamic stability of complex network dynamics
34	Matteo Mazzamurro	Assessing the Impact of Transportation Infrastructure on Urban Accessibility Equity: A Network-Entropy-Based Approach
35	Gautam Mahapatra	Mitigating Epidemic Spread using Digital Contact Tracing
36	Pedro Ramaciotti Morales	Measuring multidimensional polarization in social media populations across countries in comparable political dimensions
37	Kishore Hari	The interplay of structural balance and frustration governs the emergent dynamics of biological networks
38	Gabriele Di Bona	The dynamics of higher-order novelties
39	Satyam Mukherjee	The Evolution and Formation of Indian Political Debate Networks
40	Armin Pournaki	Polarization and issue alignment on Twitter
41	Govind Gandhi	Self-Supervised Modularity Maximization using Graph Embeddings

Poster Session

A. Posters on 15th January

S.No.	Presented by	Title of the Poster
1	Viney Kumar	Estimating epidemic threshold under individual vaccination behavior and adaptive social connections: A game-theoretic complex network model
2	Sarvesh Kumar Upadhyay	Complex networks and bunching of extreme events
3	Ankur Kumar Jain	Rumor Diffusion Model on Social Networks with Experts Strategy & Crawley Martin Functional Response
4	Shanmuga Priya B	A network biology approach to elucidate mechanisms of disease progression by utilizing compiled databases specific to human health
5	Madhumita Mondal	Bakry–Émery–Ricci curvature: an alternative network geometry measure in the expanding toolbox of graph Ricci curvatures
6	Nikhil Chivukula	ViCEKb: Creation and network-based analysis of a curated knowledgebase on vitiligo-triggering chemicals to link exposome and health
7	Shreyes Rajan Madgaonkar	Network toxicology approach for investigation of environmental contaminants-induced toxicological effects on human and ecosystem health
8	Yash Arya	Effects of structural properties of neural networks on machine-learning performance
9	Karan Singh	Streamlined approach to mitigation of cascading failure in complex networks
10	Akash Yadav	Disparity-driven heterogeneous nucleation in finite-size adaptive networks
11	Ayushi Saxena	Effects of repulsive coupling in non-locally coupled ring of phase oscillators
12	Kiran Sharma	The Ripple Effect of Retraction on an Author's Collaboration Network
13	Sangita Dutta	Global synchrony in presence of higher order interactions
14	Shraosi Dawn	Dynamical stability of complex systems
15	Ajaya Kumar Sahoo	Investigation of plastic additives-induced toxicities by leveraging network-centric approach

16	Adithya L J	Continuous Time Quantum Walks on Complex Network Topologies
17	Gaurav Chopra	Tropical climate classification based on the Intertropical Convergence Zone dynamics from a complex networks perspective
18	Udit Raj	Study of Higher-Order Interactions in Unweighted, Undirected Networks Using Persistent Homology
19	Dweepabiswa Bagchi	Asynchronous dynamics of ecological systems induced by higher order interactions
20	Anggy Eka Pratiwi	A Modified SIR Model for Simulating Competitive Information Diffusion in Real-World Social Network
21	Shubham Gupta	Communities in Streaming Graphs: Small Space Data Structure, Benchmark Data Generation, and Linear Algorithm
22	Abha Singh	Fitness fluctuations in the Bak-Sneppen model
23	Shruti Tandon	Emergence of order through multilayer interactions in a turbulent reacting flow
24	Nur Aziean Mohd Irdis	Epidemic Modelling on Contiguous District Networks in Peninsular Malaysia
25	Nurul Zahirah Abd Rahim	Mapping Learning Dynamics: A Study of Friendship and Peer Tutor Networks using SNA and TDA in Malaysian Higher Education
26	Dishant Sisodia	Dynamical analysis of a parameter-aware reservoir computer
27	Abhishek Sharma	Synchronization transitions in adaptive Kuramoto-Sakaguchi oscillators with higher-order interactions
28	Priyanka Rajwani	Stochastic Kuramoto oscillators with inertia and higher-order interactions
29	Thamizharasan S	Collective dynamical states in adaptively coupled identical phase oscillators
30	Anupama Roy	Mitigation and Enhancement of Neuronal Extreme Events:Impact of coupling and random links
31	Robert Rai	Compartmental Framework for Prebunking Misinformation
32	Vishnu A M	Modelling protein complexes as multilayer networks
33	Md Sayeed Anwar	Synchronization in adaptive higher-order networks
34	Rishi Ranjan Singh	Deep Learning based Link Prediction for Minimizing Maximum Betweenness of Networks
35	Komal Chawla	Heterogeneity induced control of chaotic systems
36	Divyanshi Kanwar	Identification of Depression Markers in the resting state by Functional Brain Networks

B. Posters on 16th January

S.No.	Presented by	Title of the Poster
1	Swati Chauhan	Machine Learning for Phase Ordering Dynamics
2	Prateek Yadav	Classification of brain networks of Caenorhabditis elegans into different life stages using supervised machine learning
3	Imran Ansari	Detection of Core-Periphery Structure in Networks Using Ant Colony Optimization
4	Palash Kumar Pal	Global synchronization in generalized multilayer higher-order networks
5	Shraban Kumar Chatterjee	A Generalized Network Model for Complex Graph-Data
6	Rakshita Sharma	Effect of Phase lag parameter on the Swarmalator dynamics
7	Mohammed Mujahid M	Spatiotemporal dynamics of deep convective clouds across a wide range of scales using multiresolution analysis
8	Atiyab Zafar	Rising inequality signals collapse in a network based model of complex adaptive systems
9	Jayendrajyoti Kundu	A multidimensional systems biology approaches on Mtb-host interactions reveals potential regulators for host metabolic reprogramming
10	Swapnil Mane	Forecasting User Aggressive Behavior in Online Social Networks
11	Kumar Sourav	Collective rotation-flips in directed ring of non-isochronous Stuart-Landau oscillators
12	Tapas Kumar Pal	Extreme events in a coupled chaotic non-identical oscillators
13	Rini T Paul	Overlapping community detection in bipartite networks
14	Rahul Chhimpa	Avalanche event in number theoretic division model
15	Kaustav Mehta	Exploring Comorbidity Networks in Mild Traumatic Brain Injury Subjects through Graph Theory: A Traumatic Brain Injury Model Systems Study
16	Devvrat Pandey	Computational Analysis of Transcriptomic data reveals factors associated with prognosis and treatment in Pancreatic Ductal Adenocarcinoma
17	Praveenkumar Venkatesan	Time-varying network captures emerging phenomena prior to the Kerala floods in 2018 and 2019

18	Pritam Kundu	Genome-scale community modeling for deciphering the metabolic synergisms in termite gut microbiota
19	Vaibhav Anand	A Multi-Level Boolean Formalism
20	Adithya A	Study of El Niño Southern Oscillations using recharge-discharge model and machine learning approach
21	Kushal Haldar	Comparing the dynamics of binary-fate and multi-fate team-based regulatory networks in cellular decision making
22	Mr. Sunil Kumar Meena	Breaking Down the Quantum Circuit for Influence Maximization
23	Roi Alfassi	Semantics of creativity: identifying LLM-authored fanfiction stories with Latent Personal Analysis
24	Poulomi Chatterjee	Comparing molecular changes among breast cancer subtypes through network-based approach
25	Devanshi Chhatbar	Topology aware Optimization of Encrypted Gradient Aggregation in Differentially Private Federated Learning via Broadcast Encryption for Enhanced Security in Multi-Party Network Transmission
26	Asutosh Anand Singh	Synchronization Analysis in Kuramoto Oscillator System in the Presence of Phase Lag and Noise
27	Yuvrajsingh Pravinsingh Patil	Dynamic stability of complex systems using Gershgorin disc theorem
28	Hirdesh Kumar Pharasi	Spectral and network analysis of the financial markets
29	Richita Ghosh	Chimeric states induced by higher-order interactions in coupled prey–predator systems
30	Jisha Mariyam John	Impact of weight thresholding on the robustness of complex networks to central node attack strategies
31	Masoom Bhargava	Spatiotemporal Dynamics And Bifurcation Analysis On Network And Non-Network Environments Of Dangerous Prey And Predator Model
32	Subhasanket Dutta	Dynamical phase transitions in post-ictal generalized EEG suppression
33	Kirtidev Mohapatra	Fairness-aware Analysis of Centrality Measures in Social Networks
34	Gaurav Chauhan	Gene expression noise due to phase separation of transcription factors
35	Akrati Saxena	Fairness Metrics for Community Detection Methods in Social Networks
36	Tamanna I. Urmi	Evaluating Sparsification Algorithms for Gene Regulatory Networks: Effective Resistance, Random, K-Neighbor, and Forest Fire Approaches

C. Posters on 17th January

S.No.	Presented by	Title of the Poster
1	Rasha Shanaz	Ethics In Rotten Apples: A Network Epidemiology Approach For Active Cyber Defense
2	Emma Towlson	Rich club prominence as a novel early biomarker of cognitive decline
3	Jerry Jones David	Functional hyper-graphs of stock markets
4	Amit Sharma	Aging in Weighted Ensemble of Excitable and Self-oscillatory Neurons: The role of Pairwise and Higher-order Interactions
6	Ranjib Banerjee	Pattern formation in a two-compartment rumor model under dispersion
6	Shovan Dutta	Frustrated Quantum Magnetism on Complex Networks: What Sets the Total Spin
7	Aswin Balaji	Identifying dynamical transitions and temporal structure of complex systems dynamics
8	Nidhi Dilip Sonwane	Universality in the self-similar hierarchical organization of real-world networks
9	Moturi Pradeep	Black Swan Events on Ethereum Blockchain Transaction Networks
10	Rahul Kumar Singh	Evolution of Social Networks in Kanzara Village: Changing Patterns of Social, Informational, Agricultural and Financial Interactions
11	Madhvi Ramrakhiyani	Farthest-First Traversal For Identifying Multiple Influential Spreaders
12	Swapnil Mane	Aggression Breeds Aggression: The Impact of Aggressive Feeds on User Behavior on Social Media Network
13	Priodyuti Pradhan	Information Localization in Complex Networks
14	Amit Basak	Evolution of cooperation in multichannel games on multiplex networks