Davide Sclosa

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RESEARCH INTERESTS

*My research relates **discrete** and **continuous** mathematics and focuses on the following topics:*

- ***Dynamical Systems;***
- ***Ergodic Ramsey Theory;***
- ***Dynamics on Graphs and Networks;***
- ***Additive and Analytic Combinatorics;***
- ***Graph Theory and Random Graphs;***
- ***Matrix Groups and Group Actions.***

WORK EXPERIENCE

POSTDOC IN MATHEMATICS Nov 2024 - today
University of Crete
Dynamical Systems with applications in Additive Combinatorics and Analytic Number Theory. Supervisor: Nikos Frantzikinakis.

PHD IN MATHEMATICS Nov 2020 - Nov 2024
Vrije Universiteit Amsterdam
Dynamical Systems and Graph Theory, with applications in Networks. Supervisor: Christian Bick. Independent research on dynamics, combinatorics, and analysis, as single author and in teams.

EDUCATION

PHD IN MATHEMATICS Jan 2025 (expected)
Vrije Universiteit Amsterdam
- Thesis about *Graph Dynamical Systems*, supervision of Christian Bick.

MASTER'S DEGREE IN MATHEMATICS - FULL MARKS AND HONORS Jul 2020
University of Udine
- Thesis about *Lagarias-Wang Finiteness Conjecture*, supervision of Giovanni Panti.

BACHELOR'S DEGREE IN MATHEMATICS - FULL MARKS AND HONORS Dec 2018
University of Udine
- Thesis about *groups of matrices over finite fields*, supervision of Pietro Corvaja.

PUBLICATIONS AND PREPRINTS

- **FROM COMBINATORICS TO GEOMETRY: THE DYNAMICS OF GRAPH GRADIENT DIFFUSION**
  Geometriae Dedicata, vol. 219, n. 1, 2025

- **DYNAMICAL SYSTEMS ON GRAPH LIMITS AND THEIR SYMMETRIES**
  with Christian Bick, Journal of Dynamics and Differential Equations*, 1-36, 2024*

- **BOUNDED POWER SERIES ON THE REAL LINE**

  Journal of Mathematical Analysis and Applications, 128448, 2024

- **ALGEBRAIC GROUPS OVER FINITE FIELDS: CONNECTIONS BETWEEN SUBGROUPS AND ISOGENIES**

  Journal of Group Theory, 26 (6), 1143-1155, 2023

- **THE FINITENESS CONJECTURE HOLDS IN $\mathrm{SL}_2(\mathbb{Z}_{\geq 0})$**

  with Giovanni Panti, Nonlinearity, 34 (8), 5234, 2021

- **COMPLETELY DEGENERATE EQUILIBRIA OF THE KURAMOTO MODEL ON NETWORKS**

  Nonlinearity, vol. 37, n. 9, 2024

- **KURAMOTO NETWORKS WITH INFINITELY MANY STABLE EQUILIBRIA**

  SIAM Journal on Applied Dynamical SystemsVol. 22, Iss. 4, 2023

- **DIMENSION BOUNDS FOR SYSTEMS OF EQUATIONS WITH GRAPH STRUCTURE**

  arXiv preprint arXiv:2410.06840, 2024

- **A RANDOM-WALK CONCENTRATION PRINCIPLE FOR OCCUPANCY PROCESSES ON FINITE GRAPHS**

  arXiv preprint arXiv:2410.06807, 2024

- **IF YOU ARE THE SMARTEST PERSON IN THE ROOM, YOU ARE IN THE WRONG ROOM**

  arXiv preprint arXiv:2407.08042, 2024

TEACHING, MENTORING, AND ORGANIZING

- **TEACHING ASSISTANT**

  Tutorials in Dynamical Systems, Discrete Mathematics, and Mathematical Analysis.

- **MENTORSHIP**

  Co-Supervision Bachelor's student.

- **WORKSHOPS ORGANIZER**
    - *Graph Stochastic Dynamics and Dynamic Stochastic Graphs (2024);*
    - *Dynamics of Networks with Switching Topology (2023).*

- **HIRING COMMITTEE**

  Tenure track position (2022), PhD position (2024).

CONFERENCES AND SEMINARS

Invited speaker *at the following events:*

- ***University of Crete****, Grece - Analysis Seminar, 05/12/2024*

- ***Lund University****, Sweden - NetDyn2024 Workshop, 26/08/2024*

- ***online*** *- One World Dynamics, 05/06/2024*

- ***Oxford University****, UK - Networks Seminar, 30/04/2024*

- **Imperial College**, *UK - Dynamical Systems Seminar, 26/03/2024*
- **Exeter University**, *UK - Dynamics Seminar, 21/03/2024*
- **Bernoulli Institute**, *Groningen, Netherlands - Floris Takens Seminar, 27/9/23*
- **Naples**, *Italy - Dynamics Days Europe 2023 (Conference) 03/09/23 - 08/09/23*
- **Portland** *(Oregon), US - SIAM Dynamical Systems 2023 (Conference) 15/05/23 - 18/05/23*
- **Technical University of Munich** *(TUM), Germany - Oberseminar Dynamics, 27/9/21*
- **online** *- Lowlands Dynamics Seminar, 28/4/2021*