

Davide Sclosa

davide.sclosa@gmail.com

+39 3456773286

<https://davidesclosa.github.io>

RESEARCH INTERESTS

I am interested in connections between *discrete* and *continuous structures* in mathematics, in particular, between combinatorics and dynamical systems. I like to work with graphs, maps, measures, flows, groups, generating functions.

WORK EXPERIENCE

PHD IN MATHEMATICS

Nov 2020 - Nov 2024

Vrije Universiteit Amsterdam



I am pursuing a PhD in dynamical systems on graphs under the supervision of Christian Bick, investigating connections between dynamics and graph theory. During the PhD, I also conducted independent research in combinatorics and in analysis, participated as invited speaker at international events, served as a teaching assistant, supervised a Bachelor student, and organized workshops.

EDUCATION

MASTER'S DEGREE IN MATHEMATICS - FULL MARKS AND HONORS

Jul 2020

University of Udine



I graduated with full marks and honors under the supervision of Giovanni Panti, with a thesis proving a special case of the *Lagarias-Wang Finiteness Conjecture*. The result combines combinatorics of words with hyperbolic geometry and is applied to the study of hyperbolic billiards.

BACHELOR'S DEGREE IN MATHEMATICS - FULL MARKS AND HONORS

Dec 2018

University of Udine



I graduated with full marks and honors under the supervision of Pietro Corvaja, with a thesis on algebraic groups over finite fields. The main result relates coverings of a linear algebraic group to popular subgroup indexes in the groups of rational points over finite fields.

PUBLICATIONS

• 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 $SL(2, \mathbb{Z})$

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 Systems Vol. 22, Iss. 4, 2023

PREPRINTS

- **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

- **FROM COMBINATORICS TO GEOMETRY: THE DYNAMICS OF GRAPH GRADIENT DIFFUSION**

arXiv preprint arXiv:2308.08311, 2023

TEACHING AND MENTORSHIP EXPERIENCE

- **TEACHING ASSISTANT**

2020-2024

I led tutorials, study sessions, and helped preparing and grading exams in the following courses: Discrete Mathematics, Dynamical Systems, Mathematical Analysis.

- **MENTORSHIP**

2023

I supervised a Bachelor's student through weekly meetings, providing ongoing thesis feedback and guidance.

ACADEMIC SERVICE AND EVENT ORGANIZATION

- **WORKSHOPS ORGANIZER**

I co-organized the following workshops:

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

- **HIRING COMMITTEE**

I served in two hiring committees, one in 2022 for two tenure track positions, one in 2024 for one PhD position.

CONFERENCES AND SEMINARS

- **CONFERENCES**

*I was **invited speaker** at the following international conferences.*

- *Naples, Italy - Dynamics Days Europe 2023 03/09/23 - 08/09/23*
- *Portland (Oregon), US - SIAM Dynamical Systems 2023 15/05/23 - 18/05/23*

- **SEMINARS**

*I was **invited speaker** at the following seminars and workshops.*

- 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
- Technical University of Munich (TUM), Germany - Oberseminar Dynamics, 27/9/21
- (online) - Lowlands Dynamics Seminar, 28/4/2021