

Francesco Morabito

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EDUCATION

PhD Mathematics, École Polytechnique

Palaiseau, France

Quantitative Symplectic Topology

Oct 2020 - Sep 2024

- Dissertation title: Tresses en dynamique hamiltonienne de la basse dimension.
- PhD advisor: M. Vincent Humilière.

M2 Mathématiques Fondamentales, Paris XIII

Villetaneuse, France

Mention très bien

Sep 2019 - Jun 2020

- Dissertation title: Floer and Morse Homology via Generating Functions.
- Supervisor: M. Vincent Humilière.
- Funded within the PGSM program.

M1 Mathématiques, Paris XIII

Villetaneuse, France

Mention très bien

Sep 2018 - Jun 2019

- Dissertation title: A Brief Introduction to Morse Theory.
- Supervisor: M. Francis Nier.
- Funded by Laboratoire Analyse, Géométrie et Applications.

Laurea Triennale in Matematica, Università di Padova

Padova, Italy

110/110 cum laude

Oct 2015 - Sep 2018

- Dissertation title: Fast-Slow Systems and Bifurcations in Neuroscience.
- Supervisors: Prof. Giancarlo Benettin, Prof. Robert MacKay (Warwick University).
- Erasmus at Warwick University: Oct 2017 - Jul 2018.
- First year of Laurea Triennale in Fisica: Oct 2016-Oct 2016.

PAPERS AND PREPRINTS

Hofer Energy and Link Preserving Diffeomorphisms in Higher Genus

Joint with Ibrahim Trifa, arXiv:2404.01052 (2024)

Link Floer Homology and a Hofer Pseudometric on Braids

arXiv:2301.08105 (2023)

ORGANISED WORKSHOPS

Spring School on Floer Homotopy Theory

April 2024 - May 2024

- Co-organised with Amanda Hirschi. The funding is provided by the French Agence Nationale de la Recherche, the Université de Strasbourg Institut d'Études Avancées, the Institut Universitaire de France and the European Research Council.
- Attendees, coming from various places in Europe and the US, gave talks about recent developments in the field by Abouzaid and Blumberg, or about their own research.

Topological Persistence in Geometry and Analysis

Jan 2022 – May 2022

- Co-organised with Leonardo Masci.
- In this reading seminar a team of postgraduate students from universities in Paris and Aachen (Germany) explain basic topics in the theory, and applications to Symplectic, Contact and Riemannian Geometry.
- Website: <https://sites.google.com/view/rwth-imj-reading-persist-mod>

Courbes J -holomorphes en Topologie Symplectique

Jun 2021 – Jun 2022

- In this workshop a team of PhD students from different universities in Paris approached the reading of the eponymous book by D. McDuff and D. Salamon.
- Focus on basics of J -holomorphic theory, moduli spaces and pseudocycles, Gromov-Witten invariants and Quantum Cohomology.

TEACHING EXPERIENCE

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| Cursus Polytechnicien, MAT452, “Analyse Fonctionnelle”, tutorat | academic year 2023/2024 |
| Bachelor de l’X, MAA101 “Linear Algebra”, exercises | academic year 2023/2024 |
| Bachelor de l’X, MAA202 “Topology and Multivariable Calculus”, exercises | academic year 2023/2024 |
| Bachelor de l’X, MAA202 “Topology and Multivariable Calculus”, exercises | academic year 2022/2023 |
| Bachelor de l’X, MAA201 “Euclidean and Hermitian Spaces”, exercises | academic year 2021/2022 |
| Bachelor de l’X, MAA105 “Integral and Differential Calculus”, exercises | academic year 2020/2021 |
| Bachelor de l’X, MAA302 “Topology and Differential Calculus”, exercises | academic year 2020/2021 |

ATTENDED CONFERENCES

- **Viterbo 60+3: From Hamiltonian Dynamics to Symplectic Topology and Beyond**
Institut Henri Poincaré, Paris (03/06/2024-07/02/2024)
- **Symplectic Dynamics in Montevideo**
Universidad de la República, Montevideo (05/02/2024-09/02/2024)
- **SFT X - Workshop on Symplectic Field Theory X**
Humboldt Universität zu Berlin, Berlin (26/08/2023-01/09/2023)
- **From smooth to C^0 symplectic geometry: topological aspects and dynamical implications**
CIRM, Marseille (03/07/2023-07/07/2023)
- **LP-60: Geometry and Dynamics. A Conference in Honour of Leonid Polterovich**
ETH, Zürich (26/06/2023-30/06/2023)
- **Persistence Homology in Symplectic and Contact Topology**
Institut National Universitaire Champollion, Albi (12/06/2023-16/06/2023)
- **Symplectic Dynamics - INdAM meeting**
Istituto Nazionale di Alta Matematica, Rome (22/05/2023-26/05/2023)
- **Singularities and Low Dimensional Topology Winter School**
Rényi Institute, Budapest (23/01/2023 - 27/01/2023)
- **Two days in Symplectic Dynamics**
Ecole Normale Supérieure de Lyon, Lyon (29/09/2022 - 30/09/2022)
- **Convexity in contact and symplectic topology**
Institut Henri Poincaré, Paris (04/07/2022 - 08/07/2022)
- **Frontiers of Quantitative Symplectic and Contact Geometry**
Mittag-Leffler Institute, Djursholm (27/06/2022 - 01/07/2022)
- **Braids in Low Dimensional Topology**
ICERM, Providence (25/04/2022-29/04/2022)
- **Braids in Symplectic and Algebraic Geometry**
ICERM, Providence (21/03/2022-25/03/2022)
- **Hyperbolic and Symplectic Dynamics**
Ruhr Universität Bochum, Bochum (20/09/2021-24/09/2021)
- **Symplectic2021**
Institut Henri Poincaré, Paris (19/04/2021-21/05/2021)

INVITED TALKS

- **Séminaire de topologie** Université de Grenoble, Grenoble, France (19/04/2024)
- **Séminaire de topologie, géométrie et algèbre** Université de Nantes, Nantes, France (14/03/2024)
- **Seminário de Geometria Simplética** IMPA, Rio de Janeiro, Brazil (19/02/2024)
- **Symplectic Zoominar** The Internet (05/01/2024)
- **Analysis and Geometry Seminar** Universiteit Antwerpen, Antwerp, Belgium (22/11/2023)
- **From smooth to C^0 symplectic geometry** CIRM, Marseille, France (05/07/2023)
- **Oberseminar Dynamische Systeme** Ruhr-Universität, Bochum, Germany (25/04/2023)
- **Winter school in singularities and low dimensional topology** (lightning talk) Rényi Institute, Budapest, Hungary (27/01/2023)
- **Braids in Symplectic and Algebraic Geometry** (lightning talk) ICERM, Providence, Rhode Island, US (23/03/2022)

SKILLS AND INTERESTS

Languages: Italian (native), English (fluent), French (fluent), Spanish (good), Icelandic (basic).

Hobbies: Brazilian jiu-jitsu, guitar, bouldering, hiking and camping, reading.