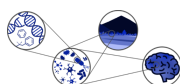# Giorgio NICOLETTI

PERSONAL DATA

PLACE AND DATE OF BIRTH:	Dolo, Italy	9th July 1995
ADDRESS:	Department of Physics and Astronomy "Galileo Galilei"
	Room 382
	Via Francesco Marzolo 8, 35131 Padova, Italy
PHONE:	+39 333 6751887
PERSONAL WEBSITE:	giorgionicoletti.github.io
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EDUCATION

OCT 2019 - PRESENT

PhD in PHYSICS
Laboratory of Interdisciplinary Physics, **University of Padova**
Supervisor: Prof. Amos MARITAN
Co-supervisor: Prof. SAMIR SUWEIS

OCT 2017 - JULY 2019

Master's Degree in PHYSICS
University of Padova, Padova
Thesis: *Scaling and renormalization group for models of neural activity.*
Advisor: Prof. Amos MARITAN
Co-Advisor: Prof. SAMIR SUWEIS

FINAL GRADE: 110/110 *cum laude*
GPA: 29.93/30

SEPT 2018 - FEB 2019

Erasmus semester
INTERNATIONAL MASTER IN PHYSICS OF COMPLEX SYSTEM , **Sorbonne University**, **Paris Diderot University**, **Paris-Sud University**, Paris
ECTS GPA: A/A

OCT 2014 - JULY 2017

Bachelor's Degree in PHYSICS
University of Padova, Padova
Thesis: *Quantum Mechanics and de Finetti theorem. A Bayesian interpretation of quantum probability.*
Advisor: Prof. PIERALBERTO MARCHETTI

FINAL GRADE: 110/110 *cum laude*
GPA: 29.19/30

SEPT 2009 - JULY 2014

High school diploma, **Liceo Scientifico "U. Morin"**, Venice
Final essay: *The emergent universe. Beyond mechanicism: does something fundamental exist?*

FINAL GRADE: 100/100 *cum laude*

Publications & preprints

arXiv 2204.01644 (2022)	Giorgio Nicoletti, Daniel M. Busiello. **Mutual information in changing environments: non-linear interactions, out-of-equilibrium systems, and continuously-varying diffusivities.**
arXiv 2202.11067 (2022)	Giorgio Nicoletti, Amos Maritan, Daniel M. Busiello. **Information-driven transitions in projections of underdamped dynamics.**
bioRxiv 2022.01.17.476567 (2022)	Giacomo Barzon, Giorgio Nicoletti, Benedetta Mariani, Marco Formentin, Samir Suweis. **Criticality and network structure drive emergent oscillations in a stochastic whole-brain model.**
Phys. Rev. Lett. 127, 228301 (2021)	Giorgio Nicoletti, Daniel M. Busiello. **Mutual information disentangles interactions from changing environments.** *Selected as Editors' Suggestion and for a viewpoint in "Physics".*
arXiv 2110.10014 (2021)	Giorgio Nicoletti, Leonardo Saravia, Ferdinando Momo, Samir Suweis. **The emergence of scale-free fire outbreaks in Australia.**
Front. Syst. Neuroscience 15:709677 (2021)	Benedetta Mariani, Giorgio Nicoletti, Marta Bisio, Marta Maschietto, Oboe Roberto, Alessandro Leparulo, Samir Suweis, Stefano Vassanelli. **Neuronal avalanches across the rat somatosensory barrel cortex and the effect of single whisker stimulation.**
arXiv 2105.05070 (2021)	Benedetta Mariani, Giorgio Nicoletti, Marta Bisio, Marta Maschietto, Stefano Vassanelli, Samir Suweis. **On the critical signatures of neural activity.**
Phys. Rev. Research 2, 023144 (2020)	Giorgio Nicoletti, Samir Suweis, Amos Maritan. **Scaling and criticality in a phenomenological renormalization group.**

Invited talks

10th Mar 2022	**Young Seminars of the Italian Society of Statistical Physics**, online. Invited talk: *Unfolding complex systems with Information Theory.*

Contributed talks and posters

25th - 29th Oct 2021 conference	**Conference on Complex Systems 2021**, Lyon, France. Contributed talk: *Disentangling the role of external and intrinsic dynamics on the critical signatures of neural activity.* Contributed talk: *Modeling the emergence of scale-free fire outbreaks in Australia.* Contributed poster: *Disentangling internal interactions from noisy environments through mutual information.*
22nd - 25th June 2021 conference	**Stochastic Models and Experiments in Ecology and Biology 2021**, ECLT, Venice, Italy. Contributed poster: *Modeling the emergence of scale-free fire outbreaks in Australia.*

6TH - 9TH OCT 2020 CONFERENCE	**Brain Criticality Virtual Meeting**, sponsored by the Brain Initiative and the Marie Sklodowska-Curie Actions. CONTRIBUTED POSTER: *What can a phenomenological Renormalization Group teach us about criticality in a network of neurons?*
29TH SEPT 2020 1ST OCT 2020 CONFERENCE	**Bernstein Conference 2020**, organized by the Bernstein Network. CONTRIBUTED POSTER: *Scaling and criticality in a phenomenological renormalization group.*
1ST - 3RD JULY 2019 CONFERENCE	**First Italian Conference on Complex Systems**, Bruno Kessler Foundation, Trento. CONTRIBUTED POSTER: *Scaling and Renormalization Group for the activity of neurons.*

ORGANIZED CONFERENCES

27TH OCT 2021 SATELLITE	**Robustness, Adaptability and Critical Transitions in Living Systems Satellite** held at the Conference on Complex Systems 2021, Lyon, France. Main organizer.

ATTENDED SCHOOLS AND WORKSHOPS

24TH - 28TH JAN 2022 WORKSHOP	**Winter Workshop on Complex Systems 2022**, Arc-et-Senans, France.
30TH MAY 2021 12TH JUNE 2021 SCHOOL	**The Beg Rohu Summer School "Statistical Mechanics and Emergent Phenomena in Biology"**, Beg Rohu, Saint Pierre Quiberon, France.
30TH NOV 2020 18TH DEC 2020 SCHOOL	**Winter School on Quantitative Systems Biology**, organized by the International Center for Theoretical Physics, Italy, online.
29TH JUNE 3RD JULY 2020 WORKSHOP	**Youth in High Dimensions: Machine Learning, High Dimensional Statistics and Inference for the New Generation**, organized by the International Center for Theoretical Physics, Italy, online.
9TH - 16TH SEPT 2019 SCHOOL	**Computational and Theoretical Models in Neuroscience Summer School**, Venice, Italy. WORKING GROUP PROJECT: "Spiking models of metastable activity: theory and applications" with prof. Luca Mazzucato, University of Oregon.

TEACHING EXPERIENCE AND STUDENT SUPERVISION

2021/22 SUPERVISION	Co-supervisor of one master's thesis. Supervision of two students research projects, Master's Degree in Physics of Data, University of Padova.
2021/22, 1ST SEMESTER TEACHING	**Models of Theoretical Physics**, Master's Degree in Physics of Data, University of Padova. *Teaching assistant (20 hours).*

2021/22, 1ST SEMESTER TEACHING	**IT and Bioinformatics**, Bachelor's Degree in Molecular Biology, University of Padova. *Teaching assistant (20 hours) for the Python programming language.*
2020/21, 1ST SEMESTER TEACHING	**IT and Bioinformatics**, Bachelor's Degree in Biology, University of Padova. *Teaching assistant (21 hours) for the Python programming language.*
21ST - 30TH OCT 2020 ATTENDED WORKSHOP	**Innovative University Teaching and Learning Physics**, University of Padova.

SERVICE AND MEMBERSHIPS

2021 - PRESENT	Member of the **Complex Systems Society**.
2021 - PRESENT	Elected representative in the **PhD Program Committee** and in the **Academic Board of the PhD program**, Department of Physics and Astronomy, University of Padova.

HONORS AND AWARDS

20TH DEC 2021	**Winner of the SECS grant**, funded by the *Young Researchers in Complex Systems Society*.
22ND NOV 2021	**Physical Review Letters Editors' Suggestion, viewpoint in "Physics" magazine and highlight in PRL's weekly tip sheet for reporters** for the paper *Mutual information disentangles interactions from changing environments*, Phys. Rev. Lett. 127, 228301 (2021).
25TH JUNE 2021	**Best Poster Award** for the poster "Modeling the emergence of scale-free fire outbreaks in Australia" at *Stochastic Models and Experiments in Ecology and Biology 2021*, ECLT, Venice, Italy. **Sponsored by MDPI**.
2020	Graduate Alumni Award for the best students who graduated in the academic year 2018/2019, **University of Padova**.
FEB 2017	Winner of the grant for the best students of scientific first cycle degrees, granted by **University of Padova**.
10TH OCT 2014	Winner of the award for the high school students with the highest final grade and honors, granted by **MIUR**, the Italian Ministry for Education, University and Research.

IT SKILLS

ADVANCED KNOWLEDGE	Python
GOOD KNOWLEDGE	Mathematica, LaTeX
BASIC KNOWLEDGE	C++, ROOT, Matlab, LINUX, HTML, CSS

2020 - PRESENT   Web curator and administrator of the website of the Laboratory of Interdisciplinary Physics, University of Padova, and of the related academic initiatives (workshops, conferences, etc.).

LANGUAGES

ITALIAN: Native.
ENGLISH: Fluent, C1 level per the Cambridge English assessment.
FRENCH: Intermediate knowledge, B1-B2 level per the Erasmus OLS language assessment.