

CURRICULUM VITAE of Francesco Ginelli

Personal Information

Married, one daughter

Italian Nationality

Affiliation

Associate Professor of Theoretical Physics, Università degli Studi dell'Insubria,

DISAT (Dipartimento di Scienza e Alta Tecnologia) -- Via Valleggio, 11, 22100 Como, Italy (since Sept. 2019)

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Education

- February 2002, **PhD in physics** at the University of Florence with a thesis in nonlinear dynamics: "Stability effects in spatially extended systems". Director: Professor Roberto Livi.
- October 1998, **MSc in Physics** at the University of Milan, with a thesis in theoretical material science: "Electronic Properties and electromagnetic response of carbon linear chains and nanotubes". Final mark: 110/110. Director: Professor R.A. Broglia

Past Academic Career

- August 1st , 2017 – August 31st 2019: Reader, SUPA, ICSMB and Physics Department, University of Aberdeen, Aberdeen, UK
- August 1st 2014 – July 31th 2017: Senior Lecturer, SUPA, ICSMB and Physics Department University of Aberdeen, Aberdeen, UK.
- June 1st 2012 – July 31th 2014: Lecturer, SUPA, ICSMB and Physics Department University of Aberdeen, Aberdeen, UK.
- May 16th, 2011 – May 15th 2012: Researcher TD, Complex Systems Institute (CNR), Roma, Italy.
- 2010 – 2011: Invited researcher (as a post-doc fellow), Physics Department, University of Florence, Italy.
- 2007 – 2010: Individual fellowship (Researcher CDD), Institut des Systemès Complexes, Paris Ile de France, CNRS, Paris, France
- 2005 – 2007: Post doc position at the Service de Physique de l'Etat Condensé, CEA – Centre d'Etudes de Saclay, France. *Scientific supervisor*: Dr. Hugues Chaté
- 2004 - 2005: Post doc position (BATIIa) at Universität Würzburg, Department of Physics and Astronomy, Würzburg Germany. *Scientific supervisor*: Prof. Haye Hinrichsen
- 2002 - 2004: Post doc position at the National Institute of Optics, Firenze, Italy. *Scientific supervisor*: Prof. Antonio Politi

Grants & Awards:

Major

- May 2013 - January 2015 (21 months) -- Principal Investigator: **Response to Perturbations in Active matter systems**, EPSRC First Grant, UK (£121.000)
- August 2013 – August 2017 (48 months) -- Principal Investigator: **Perturbations in Flocking Systems (PIFS)**, Marie Curie Career Integration Grant, (Eur 100.000). Further integrated by University of Aberdeen funding for 45% of a PhD fellowship.
- January 2015 - December 2018 (48 months) (co-PI with A. Politi and B. Schelter): European Commission Marie Curie European Joint Doctorate (EJD) grant: **Complex Oscillatory Systems: Modeling and analysis (COSMOS)** (total value: Eur 3.878.423, University of Aberdeen part: Eur 819.864).

Others

- November 2007 - October 2010 (36 months) – Individual Fellowship (Guest Researcher), ISC-PIF, Paris Ile-de-France, France. (**value:** full CDD salary for 3 years plus research fundings for approximately EUR 10.000)
- June-July 2015 - SUPA Distinguished and International Visitor grant – Awarded under my invitation and coordination to Prof. John Toner, (Oregon University, USA). (£ 3000).
- Autumn 2015–Spring 2016 – Leverhulme Trust Visiting Professorship to fund the visit of Prof. Grassberger. (£ 18300, with F. Perez and A. Politi).
- June 2015 – EPSRC (via the UK Network Plus on Emergence and Physics far-from-equilibrium) funds for organizing a conference in Aberdeen (~7500 £, with S. Henkes and R. Skepnek)

Teaching duties:

At University of Insubria

- I. *The Physics of Dynamical systems*. Course coordinator and lecturer. Master degree in physics (since A.A. 2019/20).
- II. *Statistical Physics II*. Course coordinator and lecturer. Master degree in physics (since A.A. 2019/20).
- III. *Structure of matter*. Lecturer for 24 h in the course of A. Parola (since A.A. 2019/20).

At University of Aberdeen

- I. *Statistical Physics and Stochastic systems*. Course coordinator and lecturer. Degrees in physics and mathematics. University of Aberdeen, UK (2012-2018).
- II. *Analytical Mechanics and elements of Relativity*. Course coordinator (together with A. Politi) and lecturer. Degrees in physics and mathematics. University of Aberdeen, UK (2014-2017).
- III. *Collective Dynamics in Biophysical Systems*. SUPA Graduate school (Physics & Life Science). Course coordinator (together with A. Politi) and lecturer. Graduate course (since 2013, runs every two years).
- IV. *Research Skills (Analytical and Numerical methods)*. Course coordinator (together with S. Henkes) and lecturer. Degrees in physics. University of Aberdeen, UK (2016-2018).
- V. *Electricity and Magnetism*. Course coordinator (together with M. Da Silva Baptista) and lecturer. Degrees in physics. University of Aberdeen, UK (spring of 2018).

Graduate and undergraduate students:

While in Aberdeen, I have successfully supervised or co-supervised **4 graduate students** (N. Kyriakopoulos, C. Mallory, C. Zankoc, M. Faggian). In the past, while in France and Italy, I have been co-supervisor for a graduate student and two undergraduate ones (MSc level). I also supervised or co-supervised 5 honours projects (Bachelor level thesis) in Aberdeen.

- *Older Courses:*

- 2002-2003: *Introduction to Astronomy*. Course coordinator and lecturer. Master of Arts program, Pepperdine University, annex of Florence, Firenze, Italy (200 hours total, 4 semesters of 50 hours each, plus exams and grading).
- 2004: *Advanced Quantum Mechanics*, MSc in Physics, Department of Physics and Astronomy, Universität Würzburg, Germany (60 hours): tutorials of Quantum Mechanics for Priv. Doz. M. Potthoff.
- 2004 : *Statistical Mechanics*, Master en Physique, Department of Physics and Astronomy, Universität Würzburg, Germany (60 hours): tutorials of Statistical Mechanics for Prof. W. Kinzel.
- 2005: *Theoretical Mechanics*, Master en Physique, Department of Physics and Astronomy, Universität Würzburg, Germany (60 hours): tutorials of Classical Mechanics and Special Relativity for Prof. H. Hinrichsen.
- 2009-2010: *Modélisation en biologie: Physique statistique et propriétés macroscopiques des systèmes complexes*, Licence en biologie, Ecole Normale Supérieure, (invited lecturer, 6 hours)

Recent visiting periods to other academic institutions

- September 2012 (3 weeks) MPIPKS, Dresden (Max Planck Institute for the Physics of Complex Systems): *Advanced Study Group on the Statistical Physics of Collective Motion*
- June 2013 (1 month) MPIPKS, Dresden: *Advanced Study Group on the Statistical Physics of Collective Motion*
- June 2014 (1 month) The Galileo Galilei Institute for Theoretical Physics, Firenze: *Advances in nonequilibrium statistical physics*
- September 2014 (1 month) MPIPKS, Dresden: *Advanced Study Group on the Statistical Physics of Collective Motion*
- February to May 2016 (4 months), Visiting scientist, Department of medical biotechnologies, Università degli Studi di Milano, Milan, Italy
- March to April 2019 (1 month), Visiting professor, Department of Physics, University of Florence, Italy.

Academic Habilitations

- 2017: Italian scientific habilitation (ASN) to full professor for section 02/A2 – Theoretical physics of fundamental interactions.
- 2017: Italian scientific habilitation (ASN) to full professor for section 02/B2 – Theoretical physics of condensed matter.
- 2014: Italian scientific habilitation (ASN) to associate professor for section 02/B2 – Theoretical physics of condensed matter.
- 2015: Italian scientific habilitation (ASN) to associate professor for section 02/A2 – Theoretical physics of fundamental interactions.
- 2015 French qualification to Professor level: section 28 - Milieux denses et matériaux
- 2015 French qualification to Professor level: section 29 - Constituants élémentaires

Member of editorial boards

Journal of Statistical Physics (Springer), associate editor

Research interests (by keywords):

I am a theoretician with a background in statistical physics, nonlinear dynamics and complex systems.

Topics I have addressed include active matter theory, animal group behavior, collective and emergent dynamics, nonequilibrium phase transitions, inverse methods, chaos theory, synchronization, long delayed dynamics and spatiotemporal chaos.

Selected highlights of my scientific activity

1. Active matter

Combining large scale direct numerical simulations of minimal models with the study of their hydrodynamic-level description (mainly derived via a kinetic approach), my work established a classification of dilute active matter systems into different “universality classes” based on symmetries and interaction types and clarified the phase segregation phenomena and the nature of the transition to flocking behavior in the so-called Vicsek-like systems. Motivated by experimental results in animal and human collective behavior, I have first introduced topological interactions in theoretical models and shown that they yield a novel, non-trivial critical out-of-equilibrium transition to flocking. I have also derived a non-equilibrium theory for the linear response of flocks to external perturbations.

2. Covariant Lyapunov vectors

I introduced Covariant Lyapunov vectors (or Oseledets splitting) as a practical tool to characterize chaotic dynamical systems. They are an intrinsic tangent space decomposition into stable and unstable directions associated to Lyapunov exponents. They proved relevant in the study of many fundamental and applied problems, including the study of local hyperbolicity, collective modes in high-dimensional systems, hierarchical decomposition of chaos, intermittency in shell models for turbulence and possibly to the problem of predictability in atmospheric and climate models.

3. Non-equilibrium phase transitions

Synchronization of spatially extended chaotic system as a non-equilibrium phase transition: I have shown as the synchronization problem can be mapped into the Directed Percolation and Bounded KPZ universality classes (according to system propagation properties). First experimental evidence of directed percolation phase transition in an optical system with long delayed feedback.

Publications:

(Bibliometric -- ISI WoS: total citations over 2000, h-index: 22. Google Scholar: total citations over 3000, h-index: 27)

51. B. Mahault, F. Ginelli and H. Chaté, **Quantitative Assessment of the Toner and Tu Theory of Polar Flocks**, *submitted to Phys. Rev. Lett*, arXiv:1908.03794 (2019).
50. N. Kyriakopoulos, H. Chaté, F. Ginelli, **Clustering and anisotropic correlated percolation in polar flocks** *Phys. Rev E*, **100** 022606 (2019).
49. M. Faggian, F. Ginelli, F. Rosas, Z. Levnajic, **Synchronization in time-varying random networks with vanishing connectivity** *Scientific Reports* **9** 10207 (2019).
48. C. Zankoc, D. Fanelli, F. Ginelli, R. Livi, **Desynchronization and pattern formation in a feedforward oscillators network**, *Phys Rev E* **99**, 012303 (2019).

47. M. Carlu, F. Ginelli, V. Lucarini, A. Politi, **Lyapunov analysis of multiscale dynamics: the slow bundle of the two-scale Lorenz '96 model**, *Nonlinear Processes in Geophysics* **26**, 73 (2019).
46. M. Faggian, F. Ginelli, F. Marino, G. Giacomelli, **Evidence of absorbing phase transition in a bistable laser with long-delay** *Phys Rev. Lett.*, **120**, 173901 (2018).
45. M. Carlu, F. Ginelli, A. Politi, **Origin and scaling of chaos in weakly coupled phase oscillators**, *Phys Rev. E* **97** 012203 (2018).
44. D. Fanelli, F. Ginelli, R. Livi, N. Zagli, C. Zankoc, **Noise driven neuromorphic tuned amplifier**, *Phys. Rev. E* **96**, 062313 (2017).
43. F. Giavazzi, C. Malinverno, S. Corallino, F. Ginelli, G. Scita, R. Cerbino, **Giant fluctuations and structural effects in a giant epithelium**, *J. Phys D* **50** 384003 (2017).
42. C. Zankoc, D. Fanelli, F. Ginelli, R. Livi, **Intertangled stochastic motifs in networks of excitatory-inhibitory units**, *Phys. Rev. E* **96** 022308 (2017).
41. N. Kyriakopoulos, F. Ginelli, J. Toner, **Leading birds by the beak: response of flocks to external perturbations**, *New Journal of Physics*, **18**, 073039 (2016).
40. T. Mora, A.M Walczak, L. Del Castello F. Ginelli S. Melillo, L. Parisi, M. Viale A. Cavagna I. Giardina, **Local equilibrium in bird flocks** *Nature Physics* **12**, 1153 (2016).
39. F. Ginelli, **The Physics of the Vicsek Model**, *Eur. Phys. J. Spec. Top.* **225** 2099 (2016)
38. F. Ginelli, F. Peruani, M-H. Pillot, H. Chaté, G. Theraulaz, R. Bon, **Intermittent collective dynamics emerge from conflicting imperatives in sheep herds**, *PNAS* **112**, 12729 (2015).
37. S Ngo, A Peshkov, IS Aranson, E Bertin, F Ginelli, H Chaté, **Large-scale chaos and fluctuations in active nematics**, *Phys. Rev. Lett* **113**, 038302 (2014).
36. A. Peshkov, E. Bertin, F. Ginelli, H. Chaté, **Boltzmann-Ginzburg-Landau approach for continuous descriptions of generic Vicsek-like models** *Eur. Phys. J. Special Topics* **223**, 1315 (2014).
35. A Cavagna, I Giardina, F Ginelli, T Mora, D Piovani, R Tavarone, AM Walczak, **Dynamical maximum entropy approach to flocking**, *Phys. Rev. E* **89**, 042707 (2014).
34. E. Bertin, H. Chaté, F. Ginelli, G. Gregoire, S. Leonard, A. Peshkov, **Comment on Ihle, "Towards a quantitative kinetic theory of polar active matter"** *Eur. Phys. J. Special Topics* **223** 1419 (2014).
33. E. Bertin, H. Chaté, F. Ginelli, S. Mishra, A. Peshkov, S. Ramaswamy, **Mesoscopic theory for fluctuating active nematics**, *New J. Phys.* **15**, 085032 (2013)
32. F. Ginelli, H. Chaté, R. Livi, A. Politi, **Covariant Lyapunov vectors**, *J. Phys. A* **46**, 254005 (2013).
31. A. Cavagna, I. Giardina, F. Ginelli, **Boundary information inflow enhances correlation in flocking**, *Phys. Rev. Lett.* **110**, 168107 (2013)
30. M. Cencini, F. Ginelli, **Lyapunov analysis, from dynamical systems to applications**, *J. Phys A* **46** 250301 (2013).
29. A. Peshkov, I.S. Aronson, E. Bertin, H. Chaté, F. Ginelli, **Nonlinear field equations for aligning self-propelled rods**, *Phys. Rev. Lett.* **109**, 268701 (2012)
28. S. Ngo, F. Ginelli, H. Chaté, **Competing ferromagnetic and nematic alignment in self-propelled polar particles**, *Phys. Rev. E* **86**, 050101(R) (2012)
27. A. Peshkov, S. Ngo, E. Bertin, H. Chaté, F. Ginelli, **Continuous theory of active matter systems with metric-free interactions**, *Phys. Rev. Lett* **109**, 098101 (2012)
26. J. Gautrais, F. Ginelli, R. Fournier, S. Blanco, M. Soria, H. Chaté, G. Theraulaz, **Deciphering interactions in moving animal groups** *PLoS Comp. Bio.* e1002678 (2012).
25. F. Ginelli, K.A. Takeuchi, H. Chaté, A. Politi, A. Torcini, **Chaos in the Hamiltonian mean field model**, *Phys. Rev. E*, **84**, 066211(2011).
24. K. A. Takeuchi, H-I. Yang, F. Ginelli, G. Radons and H. Chaté, **Hyperbolic decoupling of tangent space and effective dimension of dissipative systems** *Phys. Rev. E*, **84**, 046214 (2011).

23. K.A. Takeuchi, H. Chaté, F. Ginelli, A. Politi, A. Torcini, **Extensive and subextensive chaos in globally coupled dynamical systems**, *Phys. Rev. Lett*, **107** 124101 (2011).
22. F. Peruani, F. Ginelli, M. Bär, and H. Chaté, **Polar vs. apolar alignment in systems of polar self-propelled particles** *J. Phys.: Conf. Ser.* **297**, 012014 (2011).
21. F. Ginelli, H. Chaté, **Relevance of Metric-Free interactions in Flocking**, *Phys. Rev. Lett.*, **105** 168103 (2010).
20. F. Ginelli, F. Peruani, M. Baer, H. Chaté, **Large-scale collective properties of self-propelled rods**, *Phys. Rev. Lett.*, **104** 184502 (2010).
19. F. Ginelli, M. Cencini, A. Torcini, **Synchronization of spatio-temporal chaos as an absorbing phase transition: a study in 2+1 dimensions**, *J. Stat. Mech: Theory and Experiment*, P12018 (2009).
18. K. Takeuchi, F. Ginelli, H. Chaté, **Lyapunov analysis captures the collective dynamics of large chaotic systems**, *Phys. Rev. Lett.* **103**, 154103 (2009).
17. H.-I. Yang, K. A. Takeuchi, F. Ginelli, H. Chaté, and G. Radons, **Hyperbolicity and the effective dimension of spatially-extended dissipative systems**. *Phys. Rev. Lett.* **102** 074102 (2009).
16. H. Chaté, F. Ginelli, G. Grégoire, F. Peruani and F. Raynaud, **Modeling Collective Motion: Variations on the Vicsek model**, *Eur. Phys J. B* **64**, 451 (2008).
15. C. Lavelle, H. Berry, G. Beslon, F. Ginelli, J-L Giavitto, Z. Kapoula, A. Le Bivic, N. Peyrieras, O. Radulescu, A. Six, V. Thomas-Vaslin and P. Bourguine, **From molecules to organisms: towards multiscale integrated models of biological systems**, *Theoretical Biology Insights* **1**, 13 (2008).
14. J. Fuchs, J. Schelter, F. Ginelli and H. Hinrichsen, **Local Persistence in the Directed Percolation Universality Class**. *J. Stat. Mech*, P04015 (2008).
13. H. Chaté, F. Ginelli, G. Grégoire and F. Raynaud **Collective motion of self-propelled particles interacting without cohesion**, *Phys Rev E*, **77**, 046113 (2008).
12. H. Chaté, F. Ginelli and G. Gregoire, **Comment on “Phase Transitions in Systems of Self-Propelled Agents and Related Network Models”**, *Phys Rev Lett* **99** 229601 (2007).
11. F. Ginelli, P. Poggi, A. Turchi, H. Chaté, R. Livi, and A. Politi, **Characterizing dynamics with covariants Lyapunov vectors**, *Phys Rev Lett* **99**, 130601 (2007).
10. F. Ginelli, H. Hinrichsen, R. Livi, D. Mukamel and A. Torcini, **Contact processes with long-range interactions**, *J. Stat. Mech.* P08008 (2006).
9. A. Politi, F. Ginelli, S. Yanchuk and Y. Maistrenko, **From synchronization to Lyapunov exponents and back**, *Physica D* **224**, 90 (2006).
8. H. Chaté, F. Ginelli and R. Montagne, **Simple model for active nematics: quasi-long-range order and giant fluctuations**, *Phys Rev Lett* **96**, 180602 (2006).
7. T. Kissinger, A. Kotowicz, O. Kurz, F. Ginelli and H. Hinrichsen, **Nonequilibrium wetting of finite samples**, *J. Stat. Mech.* P06002 (2005).
6. F. Ginelli, H. Hinrichsen, R. Livi, D. Mukamel and A. Politi, **Directed Percolation with long-range interactions: Modelling non-equilibrium wetting**, *Phys Rev E* **71**, 026121 (2005).
5. F. Ginelli and H. Hinrichsen, **Mean field theory for skewed height profiles in KPZ growth processes**, *J. Phys A* **37**, 11085 (2004).
4. F. Ginelli, V. Ahlers, R. Livi, D. Mukamel, A. Pikovsky, A. Politi and A. Torcini, **From multiplicative noise to directed percolation in wetting transitions**, *Phys. Rev. E* **68**, 065102(R) (2003).
3. F. Ginelli, R. Livi, A. Politi and A. Torcini, **Relationship between directed percolation and the synchronization transition in spatially extended systems**, *Phys. Rev. E* **67**, 046217 (2003)
2. F. Ginelli, R. Livi and A. Politi, **Emergence of chaotic behaviour in linearly stable systems**, *J. Phys. A* **35**, 499 (2002).
1. M. Bianchetti, P. F. Buonsante, F. Ginelli, H. E Roman, R. A. Broglia and F. Alasia, **Ab-initio Study of the Electromagnetic Response and Polarizability Properties of Carbon Chains**, *Phys. Reports* **357/6**, 459 (2002).

Monographs:

M. Cencini and F. Ginelli (editors) **Lyapunov analysis, from dynamical systems to applications**, Journal of Physics A special issue, *J. Phys A* **46** (2013).

Recent Invited Seminars/workshop/schools (in total, around 40 invited and 50 contributed):

- Plenary speaker : “**Characterizing Dynamics with Covariant Lyapunov Vectors**” September 2011, *Dynamics Days Europe*, Oldenburg Germany.
- “**Collective Motion in active matter systems**”, Jan. 2011, *Eugene-Wigner-Colloquium*, TU University, Berlin.
- “**Collective Motion in active matter systems**”, September 2011, *Collective Dynamics and Pattern Formation in Active Matter Systems*, MPIPKS, Dresden, Germany
- “**Pattern formation in active matter systems**” November 2012, *Coupled networks, patterns and complexity*, Weierstrass Institute Berlin, Germany.
- “**Collective motion with topological interactions**”, March 2013, *Mathematical Modeling in Cell Biology*, CNRS, Lyon, France
- “**Microscopic models for theory and experiments**”, June 2013, *Connecting Theory and Experiments in Active Matter*, MPIPKS Dresden, Germany
- “**Covariant Lyapunov Vectors: A tool for predictability and chaos detection**” June 2013, *Methods of Chaos detection and Predictability: Theory and Applications*, MPIPKS, Dresden, Germany.
- “**Statistical physics of dry active matter**”, July 2013, *Perspective in Nonlinear Dynamics*, Hyderabad, India.
- “**A Vector Story**”, July 2013, *XVIII Convegno Nazionale di Fisica Statistica*, Parma, Italy.
- “**Characterizing dynamics with covariant Lyapunov vectors**” *Random Dynamical Systems and Multiplicative Ergodic Theorems* – January 2015, Banff, Canada
- “**Scale-free behavior in large groups of sheep**” April 2015, *Criticality in Biology, a Critical assessment* MPIPKS, Dresden, Germany.
- “**Nematic active matter: microscopic and mesoscopic description**” May 2015, *Spring School on Active Matter*, Beijing Computational Science Research Center, China.
- “**Boundary information inflow enhances correlation in flocking**”, *International Conference on Physics of Active Matter*, May 2015, Suzhou, China
- “**Boundary information inflow enhances correlation in flocking**”, *Paths through Chaos and Complexity*, June 2015, Florence, Italy
- “**The physics of the Vicsek model**”, *Microswimmers – From Single Particle Motion to Collective Behavior*, DFG Summer School, September 2015 Forschungszentrum Jülich, Germany.
- “**Response to perturbations in flocking systems**” -- *Anisotropy and shape in Biological Materials: From Structure to Functionality*, May 2016, Lorentz Center, Leiden, Netherlands.
- “**Leading birds by the beak: Response to perturbations in flocking systems**” *International Conference on Control of Complex Systems and Networks*, September 2016, Heringsdorf, Germany.
- “**The physics of the Vicsek model and beyond**”, *The Geilo School 2017: Physics Inspired by Living Matter*, March 2017 Geilo, Norway.
- “**The Boltzmann-Ginzburg-Landau mesoscopic approach to flocking active matter**”, *Fluids and structure: Interaction and modelling workshop*, May 2017, Naples, Italy.
- “**Fluctuations and Structure in a flocking epithelium**”, *Workshop on Physical approaches to active matter*, June 2017, Porto de Galinha, Recife, Brazil
- “**Physical aspects of active matter**”, *9th IUPAP International Conference on Biological Physics, Tutorial session*, June 2017, Rio de Janeiro, Brazil

- **“Fluctuations and Structure in a flocking epithelium”**, 9th IUPAP International Conference on Biological Physics, June 2017, Rio de Janeiro, Brazil
- **“Evidence of an absorbing phase transition in a bi-stable dynamics with long delay”**, June 2017, XXII Convegno Nazionale di Fisica Statistica, Parma, Italy.
- **“Driving Collective Motion: on fluctuations in spontaneous vs. directed migrations”**, May 2018, Conference on Collective Behavior, ICTP, Trieste, Italy.
- **“Perturbations and Boundaries in Flocking systems”**, July 2019, Statistical Mechanics of Swarming Behavior, La Plata, Argentina
- **“Time-varying interaction networks: from flockst o random ones”**, August 2019, Networks: From structure to function, Aberdeen UK.

Other professional activities:

Administrative duties

Universita' dell'Insubria

- Member of the PhD Supervisory Board (Collegio di Dottorato) for Physics and Astronomy, Università dell'Insubria (Italy).

Past duties In Aberdeen

- University of Aberdeen Physical Sciences & Engineering ethics committee member.
- Deputy director of Graduate Studies, Physics Department, Aberdeen University
- University of Aberdeen representative for the SUPA PaLS (Scottish University Physics Alliance, Physics and Life Sciences theme) committee and for the SUPA Industrial Focus group.
- Department of Physics 4th year courses convener.
- Panel member for PhD final examinations (both internal and external) and for 1st and 2nd year PhD assessments.
- COSMOS EJD (Horizon 2020) Network: Supervisory Board and Research and Training committees' member.

Workshop and seminars organization

- *New perspectives in Lyapunov stability analysis: hydrodynamic limit, characterization of the phase space, predictability*, November 14-16th 2007, Galileo Galilei Institute, Firenze, Italy
- *Morning seminars season 2008*, Institut des Systemès Complexes – Paris Ile de France.
- Siam DS09 symposium *"Characterizing Dynamics with Lyapunov vectors"*, May 17-21 2009 Snowbird, Utah, USA
- *Lyapunov analysis: from theory to geophysical applications*, October 26th – 30th 2009, Institut des Systemès Complexes – Paris Ile de France, France.
- *Between cellularity and multicellularity, microbes in interaction*, July 1–2 2010, Institut des Systemès Complexes – Paris Ile de France, France.
- *SUPA PaLS Open Day*, June 4th 2015, University of Aberdeen, Aberdeen, UK
- *Physics and Biology of Active Systems*, June 23rd and 24th 2015. University of Aberdeen, Aberdeen, UK
- *Second COSMOS School and Workshop*, June 27 – July 6 2016. University of Aberdeen, Aberdeen, UK
- *Dynamics Days Europe 2021, Aberdeen, UK*

Peer review for funding bodies

EPSRC (UK), BBSRC (UK), DFG (Germany), NWO (Netherlands), FNRS (Belgium).

Peer review for journals

Science, Review of Modern Physics, Physical Review Letters, Physical Review E, Nature Physics, New Journal of Physics, European Physical Journal B, Physica D, Europhysics Letters, Chaos, Journal of Nonlinear Science, PLoS Computational Biology, Journal of Physics A, Proceedings of the Royal Society, Scientific Report, etc.

Other skills

Languages:

Italian (native speaker), English (fluent), French (fluent)

IT

Expert in numerical methods.

Known programming languages: C, C++, Matlab

Operating systems: Linux, Mac OS X, Microsoft Windows.

Software: Gnuplot, Grace, Mathematica, Latex, CGAL, standard office productivity and editing software

References:

- Professor Hugues Chate'
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- Professor Antonio Politi
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- Professor John Toner
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- Professor Peter Grassberger
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