

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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Former Academic Positions

- 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

Education

- February 2002, **PhD in physics** at the University of Florence with a thesis in nonlinear dynamics: "Stability effects in spatially extended systems". Advisor: 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. Advisor: Professor R.A. Broglia

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).
- 2019 (12 months) – Principal Investigator: Junior Post-doc funds from Università dell'Insubria (EUR: 25.000) - **Confinement Effects in Flocking Active Matter**
- March 2022- March 2025 (36 months) – University of Insubria node leader: **Response, control and learning: building new manipulation strategies in living and engineered active matter**, PRIN 2020 (Total value EUR: 688.000, University of Insubria part EUR: 122.000)
- 2023 (12 months) – Principal Investigator: Junior Post-doc funds from Università dell'Insubria (EUR: 25.000) - **Phototactic Confinement of Nematic Active Matter: a theoretical study**

Others

- November 2007 - October 2010 (36 months) – Individual Fellowship (Guest Researcher), ISC-PIF, Paris Ile-de-France, France. (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. Skepnec)
- June 2022 – Università dell'Insubria, Fondazione Volta & Fondazione Cariplo, funds for organizing a PhD school in Como (EUR 15000).

Teaching duties:

At University of Insubria (current)

- I. *The Physics of Dynamical systems*. Course coordinator and lecturer. Master's degree in physics (since A.A. 2019/20).
- II. *Statistical Physics II*. Course coordinator and lecturer. Master's degree in physics (since A.A. 2019/20).
- III. *Introduction to Equilibrium Statistical Physics*. Lecturer for a 24 h long module in the Fisica della Materia course. Bachelor in Physics (since A.A. 2019/20).
- IV. *The Physics of complex systems*. Course coordinator and lecturer. Master's degree in physics (since A.A. 2021/22).
- V. *Introduction to non-equilibrium statistical physics*. Course coordinator and lecturer. Graduate course for the PhD in Physics (20h, since A.A. 2023/24)

Graduate and undergraduate students:

At University of Insubria : Current: 1 Graduate student, 2 MSc, 1 Bachelor
 Past : 3 Graduate students, 7 MSc, 8 Bachelor

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.

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

Recent visiting periods to other academic institutions

- September 2012 (3 weeks) MIPPKS, Dresden (Max Planck Institute for the Physics of Complex Systems): *Advanced Study Group on the Statistical Physics of Collective Motion*
- June 2013 (1 month) MIPPKS, 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) MIPPKS, 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.

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, spatiotemporal chaos and statistical physics of deep learning.

Publications list:

(Bibliometric data: Scopus: total citations around 4250, h-index: 28 -- Google Scholar: total citations around 6500, h-index: 33)

59. G. Fava, F. Ginelli, B. Mahault, Density-protected states in active matter under virtual confinement, arxiv:2604.24232 (2026).
58. M Brambati, A Celani, M Gherardi, F Ginelli, Learning to Flock in open space by avoiding collisions and staying together, *J. Stat. Mech.* 033501 (2026)

57. G. Fava, A. Gambassi, F. Ginelli, **Strong Casimir-like Forces in Flocking Active Matter**, *Phys. Rev. Lett.*, **133** 148301 (2024).
56. L. Lenzini, G. Fava, F. Ginelli, **Boundary Symmetry Breaking of Flocking Systems**, *J. Stat. Mech.* 083210 (2024).
55. R. Pacelli, S. Ariosto, M. Pastore F. Ginelli, M. Gherardi, and P. Rotondo, **A statistical mechanics framework for Bayesian deep neural networks beyond the infinite-width limit**, *Nat. Mach. Int.* **5**, 1497 (2023)
54. M. Brambati, G. Fava, F. Ginelli, **Signatures of directed and spontaneous flocking**, *Phys. Rev. E* **106**, 024608 (2022).
53. S. Ariosto, R. Pacelli, F. Ginelli, M. Gherardi, and P. Rotondo, **Universal mean-field upper bound for the generalization gap of deep neural networks**, *Phys. Rev. E* **105**, 064309 (2022).
52. B. Mahault, F. Ginelli and H. Chaté, **Quantitative Assessment of the Toner and Tu Theory of Polar Flocks**, *Phys. Rev. Lett* **123** 218001 (2019).
51. N. Kyriakopoulos, H. Chaté, F. Ginelli, **Clustering and anisotropic correlated percolation in polar flocks** *Phys. Rev E*, **100** 022606 (2019).
50. M. Faggian, F. Ginelli, F. Rosas, Z. Levnajic, **Synchronization in time-varying random networks with vanishing connectivity** *Scientific Reports* **9** 10207 (2019).
49. C. Zankoc, D. Fanelli, F. Ginelli, R. Livi, **Desynchronization and pattern formation in a feedforward oscillators network**, *Phys Rev E* **99**, 012303 (2019).
48. 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).
47. 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).
46. M. Carlu, F. Ginelli, A. Politi, **Origin and scaling of chaos in weakly coupled phase oscillators**, *Phys Rev. E* **97** 012203 (2018).
45. D. Fanelli, F. Ginelli, R. Livi, N. Zagli, C. Zankoc, **Noise driven neuromorphic tuned amplifier**, *Phys. Rev. E* **96**, 062313 (2017).
44. 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).
43. C. Zankoc, D. Fanelli, F. Ginelli, R. Livi, **Intertangled stochastic motifs in networks of excitatory-inhibitory units**, *Phys. Rev. E* **96** 022308 (2017).
42. N. Kyriakopoulos, F. Ginelli, J. Toner, **Leading birds by the beak: response of flocks to external perturbations**, *New Journal of Physics*, **18**, 073039 (2016).
41. 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).
40. F. Ginelli, **The Physics of the Vicsek Model**, *Eur. Phys. J. Spec. Top.* **225** 2099 (2016)
39. 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).
38. 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).
37. 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).
36. 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).
35. 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).
34. E. Bertin, H. Chaté, F. Ginelli, S. Mishra, A. Peshkov, S. Ramaswamy, **Mesoscopic theory for fluctuating active nematics**, *New J. Phys.* **15**, 085032 (2013)
33. F. Ginelli, H. Chaté, R. Livi, A. Politi, **Covariant Lyapunov vectors**, *J. Phys. A* **46**, 254005 (2013).

32. A. Cavagna, I. Giardina, F. Ginelli, **Boundary information inflow enhances correlation in flocking**, *Phys. Rev. Lett.* **110**, 168107 (2013)
31. M. Cencini, F. Ginelli, **Lyapunov analysis, from dynamical systems to applications**, *J. Phys A* **46** 250301 (2013).
30. 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)
29. S. Ngo, F. Ginelli, H. Chaté, **Competing ferromagnetic and nematic alignment in self-propelled polar particles**, *Phys. Rev. E* **86**, 050101(R) (2012)
28. 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)
27. 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).
26. F. Ginelli, K.A. Takeuchi, H. Chaté, A. Politi, A. Torcini, **Chaos in the Hamiltonian mean field model**, *Phys. Rev. E*, **84**, 066211(2011).
25. 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).
24. 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).
23. 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).
22. F. Ginelli, H. Chaté, **Relevance of Metric-Free interactions in Flocking**, *Phys. Rev. Lett.*, **105** 168103 (2010).
21. F. Ginelli, F. Peruani, M. Baer, H. Chaté, **Large-scale collective properties of self-propelled rods**, *Phys. Rev. Lett.*, **104** 184502 (2010).
20. 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).
18. 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).
17. P Bourgin, *et al.*, **French roadmap for complex systems 2008-2009** *arXiv:0907.2221* (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. Bourgin, **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).

Graduate schools teaching

- **The physics of the Vicsek model**, Microswimmers – *From Single Particle Motion to Collective Behavior*, DFG Summer School, September 2015 Forschungszentrum Jülich, Germany.
- **The physics of the Vicsek model and beyond** *The Geilo School 2017: Physics Inspired by Living Matter*, March 2017 Geilo, Norway (6 hours).
- **Physical aspects of active matter**, *9th IUPAP International Conference on Biological Physics*, Tutorial session, June 2017, Rio de Janeiro, Brazil (3 hours)
- **Coarse-graining dry aligning active matter: The BGL approach**, May 2020, *Active 20* (online program), KITP S. Barbara USA (2 hours).
- **Active Matter**, *SIFS School*, August/September 2023, *IMT School for Advanced Studies Lucca*, Italy (19 hours)
- **Statistical Physics of Flocking Active Matter**, November 2023, *School on Collective Animal Behavior*, La Havana, Cuba (6 hours)
- **Physics of Flocking**, September/October 2024, *School on Active Matter*, ICTP-SAIFR, Sao Paulo, Brazil (6 hours)

(Recent) Invited Seminars (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
- **“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 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
- **“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 flocks to random ones”**, August 2019, *Networks: From structure to function*, Aberdeen UK.
- **Perturbations (and boundaries) in Flocking Systems**, December 2019, *SM&FT 2019*, Bari, Italy.
- **Casimir-like forces in confined flocking active matter**, August 2022, *Active Matter: The Next 25 Years*, Lorentz Center, Leiden, Netherlands.
- **Flocking under confinement**, April 2024, *Active matter: Interfaces and Boundaries*, CSRC, Beijing, China.

Other professional activities:

Administrative duties

Università dell’Insubria

- Member of the PhD Supervisory Board (Collegio di Dottorato) for Physics and Astronomy, Università dell’Insubria (Italy) (since 2019).
- 2022-2025: Member of CPDS (Commissione Paritetica Docenti Studenti), DISAT, Università dell’Insubria.
- Since 2025: Member of PQA, DISAT, Università dell’Insubria.

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 seminars and graduate schools 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
- *Statistical Physics of Deep Learning*, June 13-17 2022, Lake of Como School of Advanced Studies, Italy
- *Statistical Physics of Deep Learning II*, June 10-14 2024, Lake of Como School of Advanced Studies, Italy
- *Statistical Physics of Deep Learning III*, June 15-19 2026, Lake of Como School of Advanced Studies, Italy

Peer review for funding bodies

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

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, etc.