



Pierluigi Contucci

CURRICULUM VITÆ

Breve nota biografica

Pierluigi Contucci è Professore Ordinario di Fisica Matematica al Dipartimento di Matematica dell'Alma Mater Studiorum, Università di Bologna.

Ha un PhD in Matematica (SISSA, Trieste 1994), un Master in Fisica Matematica (Sissa, Trieste 1991) e una Laurea in Fisica (Università di Roma La Sapienza, 1989). È stato Post-doc alla Princeton University (1996-1998) e Assistant Professor alla University of California Davis (1998-2000).

È stato Professore Visitatore al Tokyo Institute of Technology (2007) e alla New York University (sede di Shanghai 2014 e di Abu Dhabi 2017).

I suoi interessi di ricerca sono in Meccanica Statistica e applicazioni, in particolare alla teoria dei sistemi complessi, a quella dell'apprendimento automatico, alla scienza dei dati in ambito socio-economico. È autore di oltre centotrenta articoli su riviste internazionali con referaggio quali Communications in Mathematical Physics, Nature Scientific Reports, Journal of Statistical Physics, Annales Henri Poincare, Physical Review Letters. È autore del saggio Rivoluzione Intelligenza Artificiale (Dedalo 2023) e di tre monografie: Meccanica Elementare e oltre (Bologna University Press, 2023), Perspectives on Spin Glasses (Cambridge University Press, 2012) e Probabilità Elementare, Teoria ed Esperimenti (Zanichelli, 2008). È editore di 7 volumi tematici e l'Editor in Chief della rivista Annales of the Academy of Sciences of Bologna. È autore, intervistato o citato su questioni scientifiche di interesse pubblico in riviste e quotidiani quali Il Mulino, Il Sole 24 Ore, Wired. È stato organizzare di conferenze internazionali tra cui un trimestre tematico all'Institut Henri Poincare (Parigi 2015). Ha ricevuto il premio Schloessman della Max Planck Society (2000). È il direttore dell'unità di Bologna dell'INdAM (Istituto Nazionale di Alta Matematica) e Membro dell'Accademia della Scienze di Bologna.

Nel novembre 2018 è stato chiamato dal MIUR nel Gruppo di Lavoro per l'Intelligenza Artificiale con compiti verso l'Istruzione Superiore e la Ricerca. Dal maggio 2023 è membro del Comitato Scientifico dell'Osservatorio Permanente sull'Adozione e l'Integrazione della Intelligenza Artificiale dell'Aspen Institute Italia.

- **Pierluigi Contucci, Professor** of Mathematical Physics

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- **Previous Positions:**

- Associate Professor 2004-2010, University of Bologna.
- Researcher (permanent position) 2000-2004, University of Bologna.
- Assistant Professor, University of California Davis, 1998-2000.
- Postdoctoral fellow: Princeton University, 1996-1998; University of Virginia 1994-1996.

- **Studies:**

- Ph.D. in Mathematics (*cum laude*), International School for Advanced Studies, Trieste, 1994.
- Master in Mathematical Physics (*cum laude*), International School for Advanced Studies, Trieste, 1991.
- Laurea in Physics (*cum laude*), University of Roma “La Sapienza” 1989.

- **Invited Visiting Professor**

- New York University Abu Dhabi, (fall term 2017), Shanghai, (fall term 2014)
- Schroedinger Institute, Dublin (summer 2010).
- Weierstraß Institute of Mathematical Sciences, Berlin (summer 2009 and 2008).
- Tokyo Institute of Technology (summer 2007).

- **Publications**

- Author of more than 130 papers published in international journals. Main Research Topics: disordered statistical mechanics, complex systems, spin

glasses (Giorgio Parisi's theory), number theory, quantum statistical mechanics, quantitative social and economics sciences, Boltzmann machines and artificial intelligence.

Full list at: <http://www.dm.unibo.it/~contucci/publications.html>.

- Author of “*Rivoluzione Intelligenza Artificiale*”, Dedalo (2023).
- Coauthor with Francesco Camilli of the book “*Meccanica Elementare e oltre*”, Bologna University Press (2023), coauthor with Cristian Giardina of the book “*Perspectives in Spin Glasses*”, Cambridge University Press (2012), coauthor with Stefano Isola of the book “*Probabilità elementare: Teoria ed Esperimenti*”, Zanichelli (2008).
- Co-Editor of the volumes: “*The Future of Digital Democracy. An Interdisciplinary Approach*” Springer (2019), “*Advances in Disordered Systems, Random Processes and Some Applications*” Springer, 2016, “*Complex Networks V*” Springer (2014), “*Applications of Mathematics in Models, Artificial Neural Networks and Arts Mathematics and Society*” Springer (2010), “*Statistical Mechanics on Random Structures*” Special Issue of Journal of Mathematical Physics (2008); “*Mathematical Physics of Spin Glasses*” Special Issue of Journal of Statistical Physics (2007); “*How can Mathematics help Social Sciences*” Special Issue of Quality and Quantity (2007).
- Author, interviewed or quoted in articles about scientific debates of public interest in magazines and newspapers like: *Il Mulino*, *Il Sole 24 Ore*, *Il Corriere della Sera*, *La Repubblica*, *Wired*, *Vanity Fair*.

• Courses and Students, Seminars and Conferences

- Taught 85 university courses, in Italy (Bologna), USA (Princeton University, University of California Davis) and China (NYU Shanghai) on topics like general physics, calculus, probability, statistical mechanics, classical mechanics.
- Supervised 30 Master students and 6 Ph.D students, among them Shannon Starr and Cristian Giardina, Ignacio Gallo, Micaela Fedele, Emanuele Mingione, Diego Alberici, Francesco Camilli.
- Gave 150 seminars and conferences worldwide: *Rome, Paris, Berlin, Vienna, Princeton, New York, Berkeley, Brisbane, Bologna, Trieste, Leipzig, Tokyo, San Paolo, Pisa, Firenze, Helsinki, Stockholm, Eindhoven, Amsterdam, Kyoto, Abu Dhabi, Shanghai*.

- **Editorial Boards**

- *Annales, Proceedings of the Academy of Sciences of Bologna*, Editor in Chief, from 2023.
- *Annali dell'Universita di Ferrara Scienze Matematiche*, from 2022
- *Advances in Mathematical Physics* from 2009.
- *Journal of Mathematical Physics* from 2014-2018.
- *Journal of Statistical Physics* 2007-2012.
- *Quality and Quantity* from 2010-2022.

- **Scientific Boards**

- Member of the Scientific Committee of the Osservatorio Permanente sull'Adozione e l'Integrazione della Intelligenza Artificiale, Aspen Institute Italia. 2023
- Member of the Group on "Artificial Intelligence, Robotics and Cybersecurity" of the Italian Space Agency, from 2022.
- Member of the Accademia delle Scienze dell'Istituto di Bologna, from 2015.
- Member of the Scientific Board of the *Istituto Cattaneo*, Bologna, 2011-2019

- **Organised Conferences**

- *Mathematical Physics of Complex Systems*, Cortona, Palazzone della Scuola Normale, 2023
- *Alma AI: Hard Sciences*, Kick-off Workshops. University of Bologna, 2021
- *Mathematical Methods and Models in Machine Learning*, University of Bologna, 2020
- *Artificial Intelligence: Art or Science?*, Trieste, SISSA, 2019
- *Mathematical and Computational Aspects of Machine Learning*, Pisa, Scuola Normale Superiore, 2019
- *Intelligent Machines and Mathematics*, University of Bologna, 2019
- *La diffusione della disinformazione scientifica: l'eco della rete*, Accademia delle Scienze, Bologna, 2017
- *The future of Democracy*, ISA Topic, Bologna, 2016

- Organiser of the Research Trimester at Institut Henri Poincare (Paris, Jan-Apr 2015): *Disordered Systems, Random Processes and their Applications*.
- *Complenet*, Bologna, 2014.
- *Disorder in Probability and Statistical Mechanics*, Modena, 2012.
- *Statistical Mechanics on Random Structures II*, Banff, Canada, 2009.
- *Meccanica*, Bologna, 2008.
- *Statistical Mechanics on Random Structures*, Eindhoven, 2008.
- *Stochastic Process in Mathematical Physics*, Firenze, 2006.
- *Mathematical Physics of Spin Glasses*, Cortona, 2005.

- **Awards and Honors**

- *Schloebmann Award* (May 2000), from the *Max Planck Society, Germany*.

- **Research Grants**

- National Coordinator of the PRIN project, from the National Ministry of University: *Statistical Mechanics and Artificial Intelligence*. 2023.
- Local Coordinator of the PRIN Project: *Statistical Mechanics and Complexity*. 2016-2019.
- Local Coordinator, Grant PRIN, from the National Ministry of University: *Statistical Mechanics of Disordered and Complex Systems*. 2012-2016.
- Coordinator of the Institut Henri Poincare Trimester Grant: *Disordered Systems, Random Processes and Applications*. (January-April 2013).
- Principal Investigator, University of Bologna Strategic Grant: *Mathematical Methods in Social Sciences*. 2007-2012.
- Local co-coordinator, European Community Grant: *Cultaptation*. 2007-2012.

- **Management Experience**

- In the role of Coordinator for the National Research Plan (MIUR) on Artificial Intelligence (2019) I have led 60 University Professors and 10 representatives of the Entrepreneurship and Industrial Associations.
- In the role of Director of the Bologna Unit of the Istituto Nazionale di Alta Matematica, since 2013, I have the scientific responsibility to supervise and approve all the projects of the Bologna area that involve about one hundred scientists.