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PARIS-SACLAY



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**Hugo Duminil-Copin, a French mathematician and a permanent professor at IHES,
has been awarded the Fields Medal**

Hugo Duminil-Copin, a French mathematician specializing in probability theory, and a permanent professor at the Institut des Hautes Études Scientifiques (IHES) since 2016, was awarded the Fields medal on the occasion of the International Congress of Mathematicians taking place in Helsinki. Considered as the most prestigious international award in mathematics, the Fields Medal crowns the exemplary scientific career and exceptional contributions to the advancement of mathematical sciences of Hugo Duminil-Copin, who is also ordinary professor in the mathematics section of the Faculty of Science at the University of Geneva.

This is the eighth Fields Medal (1) awarded to a professor at IHES (out of twelve permanent professors in mathematics since the creation of the Institute) and the eleventh Fields Medal (2) for Université Paris-Saclay, IHES being one of its founding members. This is also the sixteenth Fields medal awarded to a researcher whose institution is affiliated to CNRS (3).

Emmanuel Ullmo, Director of IHES, said: *"We are delighted that the Fields Medal has been awarded to Hugo Duminil-Copin, a probabilist whose work has been so important that the scientific council of IHES unanimously chose him as a permanent professor very early in his career. This distinction also confirms the dynamism and excellence of the French mathematical community, as well as its recognition on a global scale."*

Hugo Duminil-Copin said: *"I am very honored to receive this prize, which I wish to share with the many collaborators with whom I've had the pleasure and the honor to work, as well as with all the members of my team. As a permanent professor at IHES, I have benefited from great freedom and independence in my research, while interacting with some of the most outstanding scientists in their field, in mathematics as well as in physics."*

Three other mathematicians have been awarded the Fields Medal this year: June Huh, James Maynard and Maryna Viazovska.

Hugo Duminil-Copin, a mathematician with a remarkable track record

Born on August 26, 1985, Hugo Duminil-Copin joined the Ecole normale supérieure in Paris after two years of preparatory classes at lycée Louis-le-Grand. After receiving a master's degree from Université Paris-Sud, now Université Paris-Saclay, he earned a PhD under the supervision of Stanislas Smirnov, himself a 2010 Fields medalist, at the University of Geneva, where he later became a post-doctoral researcher.

In 2013 he became Assistant Professor at the University of Geneva, and has been a professor there since 2014. In 2016, he joined IHES as a permanent professor. Since 2017, he has been the principal investigator of the European Research Council – Starting Grant "[Critical behavior of lattice models \(CriBLam\)](#)", funded by Horizon 2020, the European Union's research and innovation funding program. He is a member of the Laboratory Alexander Grothendieck, a CNRS joint research unit (CNRS / IHES).

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Using probability theory to tackle problems in statistical physics

Hugo Duminil-Copin's work focuses on the mathematical branch of statistical physics. He uses ideas from probability theory to study the critical behavior of various models on networks, such as the Ising, the Potts, the self-avoiding walk, and the percolation models. These mathematical objects describe a number of physical phenomena (such as magnetization, polymers, material porosity, etc.) by reframing them through random trajectories, sets or random graphs.

By using new connections between these models and by developing a theory of dependent percolation, Hugo Duminil-Copin has obtained major results on these classical models and their phase transitions, thus improving our understanding of critical phenomena in statistical physics at equilibrium.

Honors and awards

Hugo Duminil Copin's work has earned him numerous awards. In 2012, he receives the Rollo Davidson Prize, together with Vincent Beffara, and the Vacheron Constantin Prize. In 2013, he is awarded the Oberwolfach Prize, before receiving the "Early Career Award" by the International Association of Mathematical Physics. In 2016, he receives the European Mathematical Society Award, and in 2017 the Breakthrough Foundation awards him the New Horizons in Mathematics Prize, reserved for particularly promising young scientists. The same year, he is awarded the Grand Prix Jacques Herbrand of the French Academy of Sciences and the Loève Prize for outstanding research in the field of mathematical probabilities. In 2018, he is among the invited speakers of the International Congress of Mathematicians held in Rio de Janeiro, Brazil. Elected member of the Academia Europaea in 2019, he receives the Dobrushin Prize that same year.

(1) Other IHES permanent professors who received the Fields Medal:

- René Thom, 1958, permanent professor at IHES from 1963 to 1990
- Alexandre Grothendieck, 1966, permanent professor at IHES from 1958 to 1970
- Pierre Deligne, 1978, permanent professor at IHES from 1970 to 1984
- Alain Connes, 1982, holder of the Leon Motchane Chair since 1979, professor emeritus since 2017
- Jean Bourgain, 1994, permanent professor at IHES from 1985 to 1993
- Maxim Kontsevich, 1998, permanent professor at IHES since 1995
- Laurent Lafforgue, 2002, permanent professor at IHES from 2000 to 2021

(2) Other mathematicians of Université Paris-Saclay having received the Fields Medal:

- Jean-Christophe Yoccoz, 1994
- Wendelin Werner, 2006
- Ngô Bảo Châu, 2010

(3) Other mathematicians who received the Fields Medal and whose institution is affiliated to the CNRS:

- Laurent Schwartz, 1950
- Jean-Pierre Serre, 1954
- Pierre-Louis Lions, 1994
- Cédric Villani, 2010
- Artur Ávila, 2014

[Institut des Hautes Études Scientifiques \(IHES\)](#)

A founding member of Université Paris-Saclay, IHES is a private research center in mathematics, theoretical physics and all related disciplines. A private foundation recognized in the public interest, the Institute has a restricted number of permanent professors, mathematicians and theoretical physicists. Each year, it welcomes about 200 visitors from all over the world for research visits. Freedom of research, independence and interdisciplinarity are the values of the IHES, which is also committed to promoting the diversity of talent in fundamental research.

[Université Paris-Saclay](#)

Université Paris-Saclay brings together ten constituent faculties and institutes, four Grandes Écoles, the Institut des Hautes Etudes Scientifiques, two associate institutions and shared laboratories with national research organisations.

With 48,000 students, 8,100 lecturers and 8,500 administrative and technical staff members, Université Paris-Saclay offers a comprehensive and varied range of undergraduate to doctorate level programmes and engineering degrees, renowned for their quality thanks to the reputation and commitment of the University's academic staff.

Located in the south of Paris on vast sites that stretch across Paris, Orsay, Évry and Versailles, Université Paris-Saclay benefits from a strategic geographical and socio-economic position that is strengthened by its international visibility. A leading University, Université Paris-Saclay is recognised for its excellent Mathematics and Physics programmes but also for Biological and Medical Sciences, Agriculture, Engineering, and its extensive Humanities and Social Sciences courses. Close to Paris, Université Paris-Saclay is nested in a protected natural area, at the very heart of a dynamic economic hub.

[CNRS](#)

The French National Center for Scientific Research is one of the most recognised and renowned public research institutions in the world. For more than 80 years, it has continued to attract talent at the highest level and to nurture multi-disciplinary and interdisciplinary research projects at the national, European and international levels. Geared towards the public interest, it contributes to the scientific, economic, social and cultural progress of France. The CNRS is above all 32,000 women and men, more than 1,000 laboratories in partnership with universities and other higher education institutions bringing together more than 120,000 employees and 200 professions that advance knowledge by exploring the living world, matter, the Universe, and the functioning of human societies. The CNRS ensures that this mission is carried out in compliance with ethical rules and with a commitment to professional equality. The close relationship it establishes between its research missions and the transfer of acquired knowledge to the public makes it today a key player in innovation in France and around the world. Partnerships with companies are at the heart of its technology transfer policy, and the start-ups that have emerged from CNRS laboratories bear witness to the economic potential of its research. The CNRS provides also access to research findings and data, and this sharing of knowledge targets many audiences: scientific communities, the media, decision-makers, economic players and the general public.

[University of Geneva](#)

The University of Geneva, Switzerland, was founded in 1559 by Jean Calvin and Théodore de Bèze and ranks amongst the top 60 best universities in the world. It enjoys worldwide recognition and develops an ever-strengthening international network. The University of Geneva welcomes about 19'000 students in its nine faculties teaching Sciences, Medicine, Humanities, Economics and Management, Social Sciences, Law, Theology, Psychology and Educational Sciences, as well as Translation and Interpreting. The University of Geneva fulfils three missions: education, research and knowledge-sharing. It is a member of the League of European Research Universities since 2002 and is a founding partner of Campus Biotech, the life science hub for the Geneva Lake region.