UNIVERSITÉ DE GENÈVE

PRESS RELEASE

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Fields Medal awarded to UNIGE Mathematician

Hugo Duminil-Copin, Full Professor in the Section of Mathematics at UNIGE, has been awarded the prestigious Fields Medal. The Lake Geneva region has been recognised twice: Professor Maryna Viazovska of the EPFL is also a medalist.

On Tuesday 5 July, 36-year-old Hugo Duminil-Copin, Full Professor at the University of Geneva (UNIGE), was awarded the Fields Medal in Helsinki. This prestigious prize is awarded by the International Congress of Mathematicians and considered the equivalent of a Nobel Prize for mathematics. With this medal, Duminil-Copin, who is also a permanent professor at the Institut des Hautes Études Scientifiques (Paris), has been recognised for the exceptional quality of his work in statistical physics. A second Fields Medal has been awarded to Maryna Viazovska, Full Professor and Chair of Number Theory at the EPFL (Lausanne). These prizes are a testament to the research excellence of the Lake Geneva region.

Awarded every four years during the International Congress of Mathematicians, the Fields Medal is one of the highest distinctions in mathematics. Today in Helsinki, the medal has been awarded to Hugo Duminil-Copin, 36, Full Professor in the Section of Mathematics at the University of Geneva's (UNIGE) Faculty of Science and Permanent Professor at the Institut des Hautes Études Scientifiques (IHES, founding member of the Université Paris-Saclay).

Duminil-Copin, who is a specialist in probability theory, said he was 'honoured and extremely proud to receive this Fields Medal.' 'I want to share it with all my colleagues,' he added, 'because mathematics is above all a collaborative process. I am also aware of the great responsibility that comes with this award, since its recipients are the ambassadors of the discipline.'

This is the fourth time that a professor or former student of UNIGE has received the Fields Medal, after Vaughan Jones in 1990, Stanislav Smirnov in 2010 and Martin Hairer in 2014. 'This award is an accolade for our institution and for Swiss academia as a whole', said Yves Flückiger, Rector of UNIGE and President of swissuniversities. 'This distinction demonstrates our ability to attract young talents and to provide the conditions they need for successful research. Our attractiveness, as well as our presence in international networks, is essential and must be preserved.'

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Expert in probability and passionate about physics, Hugo Duminil-Copin joined the UNIGE in 2008. He was appointed Professor in 2013 and then Full Professor in 2014.

High resolution pictures

The Lake Geneva region has been recognised twice: Professor Maryna Viazovska of the EPFL is also a medalist. Hugo Duminil-Copin and Maryna Viazovska are both members of the NCCR SwissMAP. Two other winners should be mentioned: June Huh from Princeton University and James Maynard from Oxford University.

A passion for physics and probability theory

Hugo Duminil-Copin is a probability expert with a passion for physics; his work focuses on the mathematical branch of statistical physics. Duminil-Copin studies phase transitions – sudden changes in the properties of matter, such as the transition of water from the gaseous to the liquid state – using probability theory. In particular, he uses probability theory to analyse mathematical models that describe three distinct phenomena: material porosity (via percolation theory), ferromagnetism (via the Ising model) and polymers (via the study of self-avoiding walks).

The first seeks to understand the mechanisms at work in porous materials such as pumice or coffee: what path does water take when it passes through such a material, for example? The second attempts to determine the behaviour of magnets, and in particular the progressive loss of their magnetism, when they are subjected to high temperatures. The third seeks to determine the positioning of polymers when they are immersed in a solvent.

By using new connections between these classical models, and by developing a theory of 'dependent percolation', Hugo Duminil-Copin has obtained transformative results that have improved our understanding of critical phenomena in statistical physics. 'This is purely fundamental research with no direct application. Nevertheless, modelling phase transitions mathematically is very important: it allows us to better understand the behaviour of matter. It gives us solid foundations that can be used for applied research with a view to industrial developments that are still impossible to foresee,' Duminil-Copin enthused.

Professor at the age of 28

Hugo Duminil-Copin was born on 26 August 1985 in Châtenay-Malabry (France) and grew up near Paris. In 2005, he began his studies at the École Normale Supérieure in Paris. He then obtained his teaching qualifications (the agrégation) and a Master's degree in probability and statistics from the Université Paris-Saclay (formerly Université Paris-Sud). Duminil-Copin joined UNIGE in 2008. In 2011, he completed his doctoral thesis, which was supervised by Professor Stanislav Smirnov, a Fields Medal winner in 2010.

UNIGE appointed Duminil-Copin professor in 2013 and full professor in 2014, when he was just 29 years old. He also joined the Institut des Hautes Études Scientifiques à Bures-Sur-Yvette (Paris) in 2016. He has received numerous awards, including the European Mathematical Society Prize and the Breakthrough Foundation's New Horizons in Mathematics Award.

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The Lake Geneva region at the forefront of fundamental research

The awarding of a Fields Medal to Hugo Duminil-Copin and Maryna Viazovska not only recognises the exceptional quality of their work, it also confirms the excellence of research and teaching in the institutions of the Lake Geneva region and the importance of their collaboration, which has already been demonstrated by projects such as the Swiss Cancer Center Léman and the Dubochet Center for Imaging. These distinctions reinforce the role of French-speaking Switzerland, and more broadly of Switzerland, as a world leader in advanced fundamental research.

About the Fields Medal

Established by the Canadian mathematician John Charles Fields (1863-1932), the Fields Medal has been awarded every four years since 1936, with a maximum of four laureates per edition. Only mathematicians under the age of 40 can receive it. The Fields Medal Committee is selected by the Executive Committee of the International Mathematical Union (IMU). It is usually chaired by the President of the IMU (currently the Argentinean-American Carlos E. Kenig). The Medal Committee must choose at least two laureates who represent different areas of the discipline. Each winner receives a medal and 15,000 Canadian dollars.

About the University of Geneva (UNIGE)

The University of Geneva (UNIGE) enjoys worlwide recognition and ranks amongst the top 100 best universities in the world. Founded in 1559 by Jean Calvin and Theodore de Beze, it welcomes nearly 19 000 students in its nine faculties and thirteen interdisciplinary centres and constantly strengthens its links with the International and Non-Governmental Organisations based in Geneva, one of the world's capitals for multilateralism. A member of the League of European Research-intensive Universities, the UNIGE fulfils three missions: education, research and knowledge sharing. www.unige.ch

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About the Institut des Hautes Études Scientifiques (IHES)

A founding member of the Université Paris-Saclay, the IHES is a private research centre devoted to mathematics, theoretical physics and all related disciplines. A private foundation of recognised public value, the Institute has a small number of permanent professors, mathematicians and theoretical physicists, and welcomes around 200 visitors a year from all over the world for research stays. Freedom of research, independence and interdisciplinarity are the fundamental values of the IHES.