Leopoldina
Nationale Akademie
der Wissenschaften

Curriculum Vitae Professor Dr Ulrike Tillmann

Image: 2021 Jean-Luc Benazet

Name: **Ulrike Tillmann**
Born: **12 December 1962**

Research Priorities: Mathematics, algebraic topology and its applications

Ulrike Tillmann is a German-British mathematician. Her focus is on Algebraic Topology, which has the aim to assign structures from algebra to topological spaces to make them viable for mathematical treatment. Ulrike Tillmann is especially interested in the theoretical foundations of quantum field theory and data analysis.

Academic and Professional Career

2021	N.N. Rothschild & Sons Professor and Director, Isaac Newton Institute, University of Cambridge, UK
2020	Chern Visiting Professor, Mathematical Sciences Research Institute, Berkeley, USA
since 2000	Professor of Mathematics, University of Oxford, Oxford, UK
1996	Habilitation, University of Bonn, Bonn, Germany
1992 - 2010	Lecturer, Merton College, University of Oxford, Oxford, UK
1990 - 1992	Research Associate, Clare Hall College, University of Cambridge, Cambridge, UK
1990	PhD, Stanford University, Stanford, USA
1987	Master of Arts, Stanford University, Stanford, USA
1985 - 1990	PhD Student, Stanford University, Stanford, USA
1985	Bachelor of Arts, Brandeis University, Waltham, USA
1982 - 1985	Studies in Computer Science and Mathematics, Brandeis University, Waltham, USA

Functions in Scientific Societies and Committees (Selection)

since 2023	Member, Einstein Foundation, Berlin, Germany
since 2023	Vice-President, International Mathematical Union
2021 - 2023	President, London Mathematical Society, London, UK
2020 - 2022	Member, Journal of Foundations of Computational Mathematics
since 2020	Chair, Advisory Committee on Mathematics Education (RS ACME), Royal Society, UK
since 2019	Member, Scientific Advisory Board, Austrian Science Fund FWF, Austria
since 2019	Member, Editorial Boards, Forum of Mathematics, Pi and Sigma
2018	Vice-President, Royal Society, UK
2018	Member, Programme Committee, International Congress of Mathematicians
since 2018	Member, Advisory Board, Max-Planck Institute for Mathematics in the Sciences, Leipzig, Germany
2018 - 2022	Chair, Advisory Board, Hausdorff Centre of Mathematics, Bonn, Germany
since 2018	Member, Journal of the American Mathematical Society (JAMS)
2018	Member, Programme Committee, International Congress of Mathematicians
since 2017	Member, Geometry & Topology
2017 - 2020	Member, Council, Royal Society, UK
2016 - 2019	Member, Wolfson Merit Award Committee, Royal Society, UK
2016 - 2019	Deputy Head, Mathematical Institute, University of Oxford, Oxford, UK
2016 - 2017	Chair, Programme Committee, Alan Turing Institute, UK
2015 - 2020	Member, Management Committee of the Isaac Newton Institute, Cambridge, UK
2015 - 2019	Member, Scientific Committee, Barcelona Graduate School of Mathematics, Barcelona, Spain
2015 - 2018	Member, Prizes Committee, London Mathematical Society, London, UK
2014	Member, Section Committee “Topology”, International Congress of Mathematicians
2013 - 2021	Vice-Chair, Scientific Advisory Board, Mathematical Research Institute Oberwolfach, Oberwolfach-Walke, Germany
2013 - 2018	Member, Moore Research Article Prize Committee, AMS, UK
2012 - 2014	Vice-President, Merton College, Oxford, UK
2011 - 2014	Chair, Research Meetings Committee, London Mathematical Society, London, UK
2011	Chair, International Review Committee, Mathematics in Norway, Norway

2010	Member, Section Committee “Topology”, International Congress of Mathematicians
2008 - 2014	Member, Council, London Mathematical Society, London, UK
2008 - 2012	Chair, Scientific Committee, European Mathematical Society/European Women in Mathematics
2008 - 2011	Member, Panel, Section “Mathematics”, Royal Society, UK
2007 - 2012	Member, Publications Committee, London Mathematical Society, London, UK
2007 - 2015	Vice-Chair, Scientific Advisory Board, Courant Research Center, Göttingen, Germany
2007 - 2011	Member and Chair, Panel “International Grants”, Royal Society, UK
2005 - 2017	Member, Programme Committee, International Centre for Mathematical Sciences

Project Coordination, Membership in Collaborative Research Projects

since 2018	Principal Investigator, Programme “Application Driven Topological Data Analysis”, Engineering and Physical Sciences Research Council (EPSRC), Swindon, UK
2003 - 2006	Senior Scientist, Focused Research Grant, National Science Foundation (NSF), USA
2000 - 2003	Advanced Fellow, “The Topology of the stable mapping class group and applications in quantum field theory”, EPSRC, Swindon, UK

Honours and Awarded Memberships

since 2021	Member, European Academy of Sciences
since 2017	Member, German National Academy of Sciences Leopoldina, Germany
since 2016	Fellow, Alan Turing Institute, London, UK
since 2012	Fellow, American Mathematical Society, USA
since 2008	Fellow, Royal Society, UK
2008	Bessel Research Award, Alexander von Humboldt Foundation, Bonn, Germany
2004	Whitehead Prize, London Mathematical Society, London, UK
1997 - 2003	Advanced Fellowship, EPSRC, UK
1989 - 1990	Sloan Research Fellowship, Alfred Sloane Foundation, New York City, USA
1982 - 1985	International Wien Fellowship, Brandeis University, Waltham, USA

Research Priorities

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Algebraic Topology connects two foundational pillars of mathematics: algebra and topology. Topology is concerned with the structures of a space that are retained after distortion. A sphere, for example, can be transformed into a cube by stretching and compressing it. Qualities are considered topological qualities if they are retained after the process. Algebra is concerned with the qualities of calculations. Algebraic Topology, on the other hand, searches for possibilities to make topological questions viable for calculation. In the past century, algebraic theory provided a deeper understanding of geometry. Recently, it delivered computational approaches to the topological theory of quantum fields as well as to data science.