Nalini Joshi – LMS Honorary Member citation

Short citation:

The London Mathematical Society has elected Professor Nalini Joshi, of The University of Sydney, Australia, to Honorary Membership of the Society. Professor Joshi is a world-leading mathematician whose pioneering work has transformed the field of integrable systems.

Long citation:

The London Mathematical Society has elected Professor Nalini Joshi, of The University of Sydney, Australia, to Honorary Membership of the Society.

Professor Nalini Joshi is a world-leading mathematician whose pioneering work has transformed the field of integrable systems. She is internationally recognised for introducing geometric and asymptotic methods to study discrete and continuous nonlinear equations, particularly the Painlevé equations. Her groundbreaking use of algebraic geometry – specifically rational surfaces – to analyse discrete Painlevé equations has revealed new behaviours of transcendental solutions and unified previously disconnected areas of mathematics.

Joshi obtained her Bachelor of Science with honours in 1982 at the University of Sydney, and her PhD at Princeton University under the supervision of Martin David Kruskal. Her early work with Martin Kruskal on connection problems in nonlinear differential equations laid the foundation for modern asymptotic analysis. Among her most influential contributions are the development of singularity analysis techniques for discrete and ultra-discrete systems, the construction of novel Lax pairs, and the first global solvability results for lattice integrable systems. Professor Joshi's research has opened new international directions, influencing fields as diverse as random matrix theory, fluid dynamics, and nonlinear optics. Her leadership in advancing the theory of discrete integrable systems and her ability to mentor and inspire early-career researchers make her an exceptional candidate for recognition.

Joshi has made extensive and impactful contributions to the mathematical community, including serving as President of the Australian Mathematical Society (2008–2010) and Vice-President of the International Mathematical Union (2019–2022). She has received prestigious awards such as the George Szekeres Medal (2020) and the ANZIAM Medal (2021) for 'unparalleled contributions to applied mathematics in leadership, gender equity, and promotion of mathematics'. She is a Fellow of the Australian Academy of Science (2008) and of the Royal Society of New South Wales, and was appointed an Officer of the Order of Australia in 2016. Her accolades include the Australian Museum's Eureka prize for Outstanding Mentor of Young Researchers (2018), New South Wales Premier's Prize for Excellence in Mathematics (2019) and recognition as an ARC Georgina Sweet Australian Laureate Fellow (2012).