

Hidetoshi Nishimori Biography

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Hidetoshi Nishimori (西森 秀稔) (1954—) was born and spent his childhood in Kochi, Shikoku, Japan, son of Minoru Nishimori, high-school teacher, and Sachiko Nishimori, teacher and later clerk at a car dealer.

Nishimori started attending the University of Tokyo in 1973, obtaining a BSc in Physics (1977), a MSc in Physics (1979) for a thesis entitled “Study of Many-State Classical Spin Systems by the Renormalization Group, Duality and Monte Carlo Simulation”, and a DSc in Physics (1982) for a thesis entitled “Rigorous Results on Random Spin Systems with Competing Interactions”, both under the supervision of Masuo Suzuki. He then went to the United States as postdoctoral scholar first with Robert B. Griffiths at the University Carnegie-Mellon in Pittsburgh, PA (1981), and then with Michael Stephen at Rutgers University in New Brunswick, NJ (1982). In 1984, he joined the Tokyo Institute of Technology as Research Fellow in the School of Science, where he climbed through the ranks (Associate Professor, 1990; Professor 1996). He served as Dean of the Graduate School of Science and Engineering and Dean of the School of Science (2011-2015) and turned emeritus in 2020. He since continues his research activities in a non-tenured position, Specially Appointed Professor, at the Tokyo Institute of Technology.

Nishimori started working on the theory of spin glasses during his graduate studies, notably identifying what is now known as the Nishimori line. He remained interested in spin glass model, working on quantum versions as well as on neural networks and on information theory applications, before developing quantum annealing in the late 1990s. Nishimori has broadly taught about spin glasses and applications, thus leading him to write *Statistical Physics of Spin Glasses and Information Processing: An Introduction* (2001).

For his work, Nishimori has received the 4th Japan IBM Science Award (1990) “for the theoretical study of spin glasses using gauge symmetry”; the 52nd Nishina Memorial Prize (2006) “for the discovery of Nishimori line in random-spin systems”; and the NEC C&C Prize (2018) “for contributions to quantum annealing and to research into random spin systems which underlie the fundamental mechanism enabling the development of quantum annealing machines”. In 2021, he further received a commendation for science and technology from the Japanese Minister of Education, Culture, Sports, Science and Technology and the Medal with Purple Ribbon from the Emperor of Japan.