

Bernard Derrida Biography

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Bernard Derrida (December 12, 1952-) spent his early childhood in El Biar, until the end of May 1962, a few weeks before the independence of Algeria. His family then moved to France, spent a few months searching a place to settle down and eventually chose the Paris area.

Derrida later attended the Lycée Condorcet before entering École normale supérieure (ENS) in 1971, where he graduated with a DEA (diploma) in theoretical physics. He wrote a *thèse de 3e cycle* (masters thesis) on a three-body quantum problem at Paris VI in 1976 and a *thèse d'état* (PhD thesis) on dynamical systems and spin glasses at Paris XI in 1979. Although formally attached to the Institut Laue-Langevin in Grenoble during his graduate years, he spent several months at ENS, where he worked closely with Yves Pomeau on dynamical systems and started to become interested in spin glasses through his exchanges with Jean Vannimenus and Gérard Toulouse. After his military service in the French Navy (1978-1979), he was appointed researcher at the Service de Physique Théorique (later, Institut de Physique Théorique) of the Commissariat à l'Énergie Atomique, in Saclay. He stayed there until 1993, when he became professor of Physics at Université Pierre et Marie Curie and at ENS. Since 2015 he holds the Statistical Physics Chair at Collège de France.

Derrida is a theoretical physicist fairly close to the mathematical physics tradition. Over the years, his research interests have covered various aspects of disordered systems and out-of-equilibrium statistical mechanics. In the 1980s, in particular, he spent a significant fraction his time working on spin glass and neural network-related problems. He notably formulated and solved the random energy model (REM) and variants like the GREM and the p -spin models, which played an important role in interpreting replica symmetry breaking. His long-standing and productive collaboration with Elizabeth Gardner also led him to contribute to the field of neural networks during that time.

Derrida received the Grand Prix Ampère of the French Academy of Sciences in 2001 and became an academy member in 2004. He also received the 2010 Boltzmann medal for “his major contributions to the understanding of disordered and of out-of-equilibrium systems, in particular through the random energy model, and for his breakthroughs in the asymmetric exclusion model”, and the 2015 Prix des Trois Physiciens from ENS. He was made Chevalier de la Légion d'Honneur in 2017.