

# Michel Talagrand Biography

October 24, 2021. Patrick Charbonneau

Michel Pierre Talagrand (February 15, 1952-) was born in Béziers, France, the son of Pierre Talagrand, a *lycée* mathematics teacher, and Raymonde Talagrand (née Molly-Mitton), a *collège* literature teacher.

Talagrand spent his childhood in Lyon, where he attended the Lycée du Parc (1966-1969), at which his father then taught. He then attended Université de Lyon (since 1971, Université Claude-Bernard Lyon 1), where he obtained a *diplôme d'études approfondies* in mathematics (1974). After passing (ranking first) the civic service exam for teaching, *agrégation de mathématiques* (1974), he joined the séminaire Choquet in Université Paris VI (or université Pierre-et-Marie-Curie), where he was also granted a CNRS *stagiaire de recherche* position (1974). There, under the direction of Gustave Choquet, he defended a *thèse de 3e cycle* entitled “Sommes vectorielles d'ensembles de mesure nulle: Convolution de mesures portées par des surfaces convexes sur une conjecture de H. H. Corons” (1975), and became a *doctor es sciences* (1977) after defending a *thèse d'état* entitled “Mesures invariantes, compacts de fonctions mesurables et topologie faible des espaces de Banach”. Talagrand spent all his career at Paris VI (since 2018, Sorbonne université), becoming CNRS directeur de recherche in *l'Equipe d'analyse fonctionnelle de l'Institut de mathématiques de Jussieu* in 1985 until his retirement in 2017. After marrying fellow mathematician Wansoo Rhee, Talagrand also joined her part of each year on the Ohio State University mathematics faculty (1985-2009).

Talagrand was trained as an analyst, but quickly turned his interest to questions in the field of probability, on which he left a lasting imprint. He notably obtained a complete characterization of bounded Gaussian processes and new methods to bound stochastic processes. He also formulated Talagrand's concentration inequalities. After 1993, at the suggestion of Erwin Bolthausen, he turned his interest to the mean-field description spin glasses, eventually rigorously demonstrating the validity of the Parisi formula.

For his promising early work, Talagrand was granted the Prix Peccot (1980). He later obtained the Prix Servant of the French Académie des sciences (1986) and the Line and Michel Loève International Prize in Probability (1995) as well as the Fermat Prize (1997) “for his fundamental contributions in various domains of probability” and the Shaw Prize (2019) “for his work on concentration inequalities, on suprema of stochastic processes and on rigorous results for spin glasses”. He was also invited twice to present at the International Congress of Mathematicians (1990 and 1998). Since 2004 he is a member of the French Académie des sciences.