

**Abstract:**

Parisi's theory of complexity is based on his prodigious solution of the Sherrington and Kirkpatrick model. From his birth, more than forty years ago, up to the present day, that theory has been progressively placed on mathematically rigorous grounds. The course, aimed at an audience of mathematicians but also scholars from the hard sciences, will present its main results with a mathematical-physics language emphasizing how it has identified a new paradigm of probability theory.