

## **FEYNMAN PATH INTEGRALS AS INFINITE DIMENSIONAL OSCILLATORY INTEGRALS**

Since their introduction in the 40s Feynman path integrals have represented a suggestive and powerful tool for the description of the dynamics of several quantum system. On the other hand, it is commonly believed that they are ill defined from a mathematical point of view and represent just an heuristic computational tool. In this talk I shall give an overview of the possible rigorous mathematical definitions of Feynman path integrals, focusing on the "infinite dimensional oscillatory integrals", a generalization of classical oscillatory integrals to the case where the integration is performed on an infinite dimensional real separable Hilbert space.