**Control of infinite dimensional closed quantum systems 2003-2013: a survey**

Thomas Chambrion

Quantum dynamics are frequently modelled, in a first approach, by evolution equations which are both linear with respect to the state and conservative.
Several difficulties prevent from easy control of such dynamics: the state often lies in an infinite dimensional space, some of the linear operators involved in the dynamics are not bounded and the dynamics is not linear in the control. Various teams, adopting different points of view and using different techniques, have addressed these issues from the beginning of the century.
This talk aims to expose some of the results obtained in the last decade and to present some of the many remaining open questions about this surprisingly rich problem.