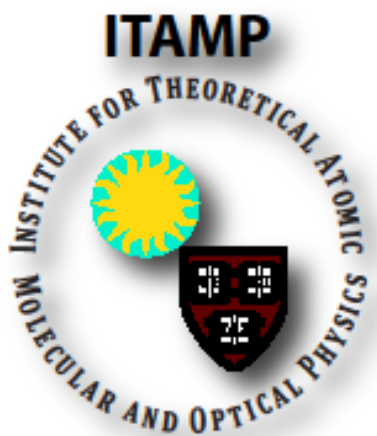


JOINT QUANTUM SCIENCES SEMINAR (IN CHEMISTRY)



Prof. Lorenza Viola

Department of Physics and Astronomy, Dartmouth College

Friday, October 12, 2:00 pm

Pfizer Auditorium Hall | 12 Oxford Mallinckrodt B23

Light Refreshments

“Quantum control of open quantum systems: from dissipation-protected to dissipation-driven quantum dynamics”

Precisely controlling the dynamics of real-world open quantum systems is a central challenge across quantum science and technology, with implications ranging from quantum physics and chemistry to high-fidelity quantum information processing. While overcoming the effect of uncontrolled decoherence and dissipation mechanisms is essential to meet this challenge, engineering the coupling to a dissipative environment can likewise be instrumental to a number of quantum control tasks. In this talk, I will describe recent advances in pursuing these two complementary approaches. In particular, I will focus on two representative problems: designing dynamically corrected quantum gates that simultaneously compensate for non-Markovian decoherence and control errors in spin qubits; designing Markovian dissipation that drives a many-qubit system to a target entangled state while respecting physical locality constraints.

Quantum Sciences Seminars (in Chemistry) are jointly sponsored with Harvard Chemistry Department and the Harvard-Smithsonian Center for Astrophysics. ITAMP sponsors talks and presentations on forefront AMO/Condensed Matter Physics from notable Scientists, Researchers and Professors. Information about speakers, and ongoing dates can be found on the ITAMP Google Calendar. Go to: <http://www.cfa.harvard.edu/itamp/gcalendar.html> If you would like to be added to our e-mail list about our events please send the request to the ITAMP Coordinator at: itamp.si.hu@gmail.com.

*ITAMP is funded by a grant from the National Science Foundation.