



UNIVERSITÀ DEGLI STUDI DI MILANO
DIPARTIMENTO DI FISICA
QUANTUM TECHNOLOGY LAB

Tuesday, 13 Nov 2018, 11:30
Aula Polvani (piano 1 LITA)

Andrea Crespi

Politecnico di Milano

Investigation of quantum phenomena via femtosecond-laser-written photonic circuits

Abstract:

Ultrashort laser pulses, focused in the bulk of a transparent substrate, may induce a permanent and localized refractive index increase. It is thus possible to inscribe optical waveguides along arbitrary paths by translating the substrate with respect to the laser focus. Optical circuits with many elements, as well as complex three-dimensional waveguide arrays, have been demonstrated by this technology in the last decade, targeting diverse applications. In particular, femtosecond laser waveguide writing has proven its potential in miniaturizing on a glass chip large interferometric setups, used to implement quantum information tasks or quantum simulation experiments with either single photons or coherent light states. I will discuss a few recent experiments where femtosecond-laser-written waveguide circuits have enabled the investigation of fundamental concepts in quantum information and the experimental observation of otherwise elusive quantum effects.



For further info:

<http://users.unimi.it/aqm/>