

# Dynamics of ultracold Bose quantum gases and in particular of bright solitons

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I will first give a brief overview of the experimental activities of the atom optics group at Institut d'Optique. We study Bosonic quantum gases in different contexts, ranging from low dimension, lattice or disordered physics. We often are interested not only on the static properties but also in the dynamics of quantum systems.

I will then focus on recent experiments on bright solitons, 1D Bose-Einstein condensates that propagate without dispersion due to attractive interactions. We have experimentally observed non-linear scattering of a bright soliton in disorder. Further prospects include the possibility to be in the quantum regime for solitons scattering, where the creation of Schrödinger cats is expected. This problem was previously studied through MCTDH.