

**S1-P.45****Entanglement Among Photon and Phonon Degrees of Freedom**S. Cârlig<sup>1,2</sup><sup>1</sup>*Institute of Applied Physics, Chişinău, Republic of Moldova*<sup>2</sup>*Institute of Electronic Engineering and Nanotechnologies, Chişinău, Republic of Moldova*

We have investigated the quantum dynamics of a laser pumped quantum dot placed on a semiconductor beam suspended in an optical cavity. We demonstrate that optical and vibrational modes are correlated and we attest the generation of entanglement involving mechanical and optical degrees of freedom.