

S1-1.3

Quantum photon conversion via coherently driven permanent dipole systems

S. Carlig, A. Mirzac, P. Bardetski and M. A. Macovei

Institute of Applied Physics, Chişinău, Republic of Moldova

The photon quantum dynamics in a damped single-mode quantized cavity field coupled with a resonantly driven two-level system possessing nonzero permanent dipoles is investigated here. The interacting subsystems are very different frequencies (microwave and optical domains) and, in this highly dispersive regime, the emitter couples to the resonator mode via its diagonal dipole moments only. As a result, this interaction regime is responsible for the cavity multiphoton quantum dynamics and photon conversion from optical to terahertz ranges, for instance. Furthermore, enhanced terahertz photon correlations occur as well.