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Noise of photons produced by electroluminescence of a double quantum dot connected to high quality resonator[1] CANRAN XU, MAXIM VAVILOV, Univ of Wisconsin, Madison — We study the full counting statistics of photons emitted in electroluminescence process, when a current flows through a double quantum dot in the Coulomb blockade regime. In a system without dissipation at the resonant condition between the energy splitting of the DQD and the photon energy, the photon statistics exhibits both a sub-Poissonian distribution and antibunching and the photon noise is reduced below one-half of the noise for the Poisson distribution. In the presence of dissipation, the noise increases, the intensity correlation function approaches that of a thermal black–body radiation and the photon distribution eventually becomes a super-Poissonian.

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