

Abstract Submitted  
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**Elastic cotunneling through a quantum dot in the presence of electromagnetic fluctuations** VLADIMIR BUBANJA, Industrial Research Limited — We consider the effect of electromagnetic fluctuations on electron transport through a quantum dot in the Coulomb blockade regime. We obtain the analytic expression for the elastic cotunneling current which shows that the electromagnetic fluctuations cause the power law suppression at low voltages,  $I \sim V^{1+2R/R_K}$  where  $R$  is the Ohmic part of the circuit impedance and  $R_K$  is the quantum resistance. This elastic cotunneling current is proportional to the level spacing of the dot and is the dominant transport below certain cross-over voltage, above which inelastic cotunneling dominates. Both cotunneling processes are of importance in accuracy considerations of the operation of the R- pump, which is a single-electron tunneling device that is of interest for applications in electrical metrology.

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