Input-output theory for AC driven tunnel junctions

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Based on previous studies [1-3], we examine the response of a tunnel junction embedded in an electromagnetic environment to driving by DC and AC voltages. The voltage input is supplied via a transmission line, which also serves to monitor the output of the device. The Hamiltonian model of the device includes the dynamics of the transmission line and allows for a detailed study of the radiation scattered by the junction.

[1] H. Grabert, Phys. Rev. B92 (2015) 245433

[2] M. Frey and H. Grabert, Phys. Rev. B94 (2016) 045429

[3] M. Frey and H. Grabert, Progr. Phys. DOI: 10.1002/prop.201600055