

An application of the Landauer-Büttiker formula to photon emitting and absorbing systems

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The abstract Landauer-Büttiker formula is applied to a Jaynes-Cummings model coupled to leads. As a result, we obtain formulas for electron and photon currents in terms of the partial cross-sections of a scattering system for which the unperturbed and perturbed Hamiltonians correspond to systems where the leads are either decoupled or coupled to the Jaynes-Cummings model. It is shown that the resolvent difference of the coupled and decoupled Hamiltonians is a trace class operator. The electron and photon currents are analyzed in detail.

The talk is based on a common paper with Horia Cornean, Lukas Wilhelm and Valentin Zagrebnov.