

1 Report

The aim of the visit of myself (R. Egger) and my postdoctoral assistant Dr. A. Zazunov (who was granted a related proposal) was to strengthen an existing collaboration with the group of Thierry Martin at the University of Marseille, France. In the past, we have already successfully collaborated on issues related to the theory of superconducting nonequilibrium transport through molecules. Recent experiments indicate that transport through such highly correlated quantum-dot like states also involves interesting spin physics, e.g. Kondo effect, magnetic switching and the like. During the visit, kicked off a new collaboration on this topic.

More specifically, recently it has been argued that there may be the possibility for a critical current for zero phase difference (a so-called ϕ_0 junction). We critically examined the literature on the issue, and then solved the problem for a generic quantum dot problem. The collaboration shall be continued, in order to write up a paper for this project, in June, when Prof. Thierry Martin will visit us (on his own grant) for one week in Düsseldorf. The paper will be submitted to Physical Review Letters.

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