

Abstract submitted to the
Conference on Concepts in Electron Correlation
September 24 - 30, 2008 Hvar, Croatia

Kondo effect in transport through Aharonov-Bohm and Aharonov-Casher interferometers

Armando Aligia

Centro Atomico Bariloche, E. Bustillo 9500, Bariloche 8400, Argentina

Submitted : 11-09-2008

In this talk, I will start with a basic explanation of the Anderson model and the Kondo effect, and its manifestations in the physics of nanodevices, such as quantum dots and impurities or groups of impurities on noble-metal surfaces, including the "quantum mirage", and comparison with experiment.

I will explain briefly a simple way to extend the Hubbard model to include Rashba spin-orbit coupling that correctly describes Aharonov-Bohm and Aharonov-Casher phases in a ring under applied magnetic and electric fields. When the ring is connected to conducting leads, I will present a formalism that is able to describe both, Kondo and interference in the Kondo regime, the spin-orbit coupling reduces strongly the conductance from the unitary limit. This effect in combination with the magnetic flux, can be used to produce spin polarized carriers.