



**CO.CO.MAT**

CONTROL OF QUANTUM CORRELATIONS IN TAILORED MATTER  
SFB/TR 21 – STUTTGART, ULM, TÜBINGEN

## Seminar

**Dr. Gabriele Campagnano**

(Universität Delft)

### **Circuit theory of quantum transport: weak localization effects and universal conductance fluctuations**

We develop a finite-element technique that allows to evaluate corrections of the order of the conductance quantum to various transport characteristics of arbitrary nanostructures. Common examples of such corrections are weak localization effect on conductance and universal conductance fluctuations. Our approach, however, is not restricted to conductance only. It allows also to determine corrections to noise characteristics, superconducting properties, strongly non-equilibrium transport and transmission distribution. This is achieved by considering Green functions of arbitrary matrix structure. We derive finite-element techniques from Cooperon and diffusion ladders for these Green functions. The derivation is supplemented with examples of application. These include transitions between ensembles and the Aharonov-Bohm effect.

**Wann?** Dienstag, 31.01.2006, 13:00 Uhr

**Wo?** Universität Stuttgart, Raum 4.331