



# JOINT NANOSCIENCE AND THEORETICAL PHYSICS COLLOQUIUM

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## *Spin phenomena in mesoscopic quantum transport: From spin ratchets to spin- polarized currents in graphene nanoribbons*

Friday, May 15<sup>th</sup> 2009, 11.15

**k-space (Q179), Fysicum**

**Abstract:**

I consider spin effects in charge transport through mesoscopic conductors of reduced dimensionality, where quantum interference effects gain importance and provide means to control and manipulate the spin degree of freedom of the charge carriers. On the one hand, I will propose a ratchet mechanism for generating spin currents in nanostructures with spin orbit interaction. On the other hand, I will discuss spin polarized currents, spin injection and spin conductance oscillations in graphene nanoribbons.

**The Colloquium is aimed for a general audience of students, teachers, and researchers interested in physics and the laws of Nature.**

**Everybody is welcome!**