



Universidad  
Carlos III de Madrid

# Seminario del Instituto Gregorio Millán

## Optical injection and dynamics of charge and spin current in quantum wells

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### Resumen

Optical manipulation of currents and spins is of a great interest for modern spintronics. We begin with the presentation of optical techniques based on the interference of one- and two-photon processes for the current injection in bulk semiconductors and semiconductor structures. Then, we analyze transverse and lateral evolution of optically injected currents in multiple quantum well structures using a hydrodynamic model. The dynamics is very complex even on time scales of the order of one picosecond due to the interplay of Coulomb forces, electron-hole drag effects, and nonlinearity of the equations of motion. The spin currents arising due to the spin-orbit coupling and skew scattering of electrons by holes will be discussed.

- **DÍA: Viernes 13 de marzo de 2009 (ATENCIÓN: DÍA INUSUAL)**
- **HORA: 12:30**
- **LUGAR: Edificio Sabatini. Aula 2.1.D04**