



DEPARTAMENTO DE  
ANÁLISIS MATEMÁTICO



Instituto de  
Matemática  
Interdisciplinar

## Seminario de QI

**Mirta Rodríguez Pinilla**

CSIC

# "Quantum polarization spectroscopy of correlations in ultracold bosonic and fermionic gases"

We show how spin-spin correlations, detected in a non-destructive way via spatially resolved quantum polarization spectroscopy, strongly characterize various phases realized in trapped ultracold atoms. Polarization degrees of freedom of the light couple to spatially resolved components of the atomic spin. In this way quantum fluctuations of matter are faithfully mapped onto those of light. In particular we demonstrate that quantum spin polarization spectroscopy provides a direct method to detect the Fulde-Ferrell-Larkin-Ovchinnikov phase realized in a one-dimensional imbalanced Fermi system and to distinguish antiferromagnetic phases in bosonic systems.

Organizado por el Grupo de Matemáticas e Información Cuántica de la UCM, en colaboración con el IMI.

31 de marzo de 2009, 15:00 horas.

**Seminario 222**

**Facultad de Ciencias Matemáticas, UCM.**