

## MAGNETISM IN ATOMIC CONTACTS

Carlos Untiedt  
Universidad de Alicante, Spain  
EMail: [untiedt@ua.es](mailto:untiedt@ua.es)

Using the mechanically controlled break junction at low temperatures and cryogenic vacuum we have studied the conductance of different magnetic (Fe, Co and Ni) and non-magnetic (Pt) materials which previously were claimed to show fractional conductance quantization. In the case of pure materials we see no quantization of the conductance nor half-quantization, even when high magnetic fields were applied. On an other hand, features in the conductance similar to what should be expected in the cases of the quantization and the fractional quantization were observed when the contact was contaminated with different molecules.

Furthermore, the absence of fractional quantization when the contact is bridged by a hydrogen molecule indicates that for the studied materials the current is never fully polarized.