Chirality Effects in Molecular Electronics

Vladimiro Mujica
Arizona State University. School of Molecular Sciences, Physical Sciences Center
PSD-D102, Tempe, AZ 85287, USA

Molecular chirality plays an important role in molecular electronics because in extended chiral molecules spin-orbit interaction is enhanced due to geometrical constraints, leading to a strong coupling between spin angular momentum and electronic linear momentum. This effect can in turn strongly modify electron transport in junctions that are dominated by tunneling. I will discuss a number of experimental evidences in STM junctions and how a simple theoretical model that we have recently developed can account for surprisingly large differences in conductance for the two optical isomers in chiral molecular junctions.