Electron Transmission and Molecular Spin Filters

Vladimiro Mujica

Department of Chemistry and Biochemistry,
Arizona State University,
Tempe, AZ 85287-1604, U. S. A.
email address corresponding author: vmujica@asu.edu

An overview of our theoretical model to interpret recent experimental findings that indicate that organic thin films can act as powerful molecular spin polarizers, despite the obvious fact that no heavy nuclei are present and hence the bare spin-orbit interaction cannot explain by itself the orders of magnitude observed experimentally.

The physical origin of the enhancement mechanism will be considered and compared to other suggestions in the literature. Taking this enhancement into account it will be shown that the experimental polarization can be justified.

References

[1] S. Yeganeh, M. A. Ratner, E. Medina, V. Mujica, V., J. Chem. Phys. 131, 014707 (2009)
[2] B. Gohler et al Science 331, 894 (2011)