

A Theoretical Model for Chiral-Induced Spin Selectivity

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The striking experimental observation that organic chiral molecules can act as electron spin polarizers, despite the fact that this type of behavior is usually associated with atoms with large atomic number, has received considerable attention. The experimental observation has been made in a variety of electron energy regimes, namely in photo-emission and STM, and it is very robust, indicating a fundamental process that is intimately related to the combined effect of molecular chirality and an enhancement of spin-orbit interaction.

In this contribution I will discuss the current status of the theory, particularly the explicit connection between spin polarization and electron transmission^{1,2,3,4,5}, which is crucial to explain the experimental observations that the longitudinal polarization depends on the number of turns of helical molecules and the existence of spin selection.

References

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