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Theoretical Study of Spin-Polarized Electron Tunneling via C₆₀ Molecules HAIYING HE, RAVINDRA PANDEY, Department of Physics, Michigan Technological University, Houghton, MI 49931, SHASHI KARNA, US Army Research Laboratory, Weapons and Materials Directorate, Aberdeen Proving Ground, MD 21005-5069 — The controlled injection and transport of spin-polarized electrons through organic molecules has drawn increasing attention in recent years due to its potential applications in molecular and molecular-nano hybrid electronics and sensors. In this talk, we will present the results of a theoretical study of spin-polarized electron tunneling via C₆₀ molecules in contact with ferromagnetic nickel electrodes. In this system, the resistance varies as the magnetic moments in the two electrodes are tuned from parallel to anti-parallel alignment. Particular attention is given to the chemical bonding features in the molecule-electrode interface, which leads to the observed difference in magnetoresistance.

Haiying He
Department of Physics, Michigan Technological University, Houghton, MI 49931

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