

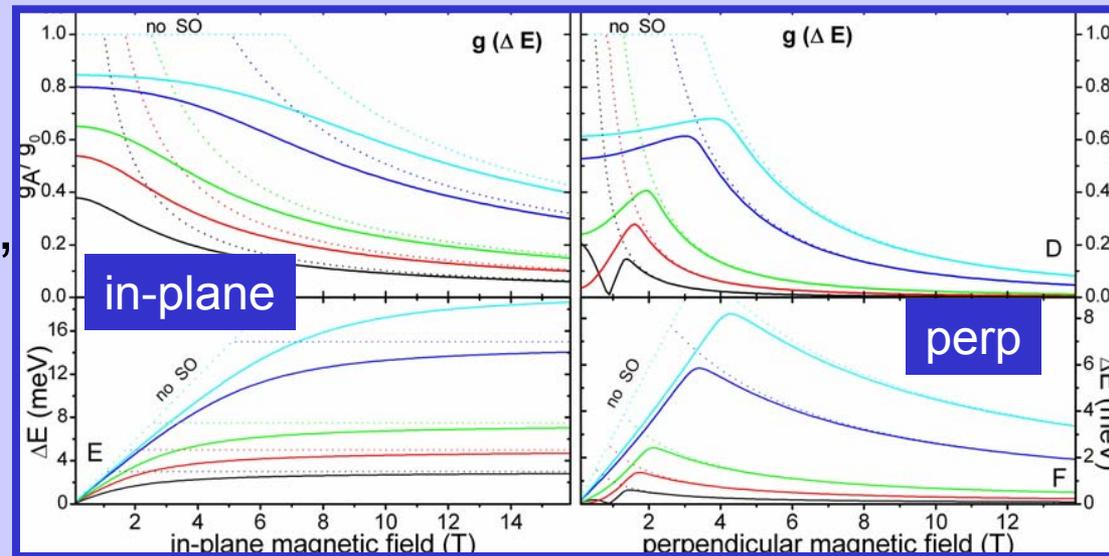
Correlation Effects and Transport in Nanostructured Materials: An Argentina-Brazil-USA Collaboration

Adriana Moreo¹, Elbio Dagotto¹, Nancy Sandler², and Sergio E. Ulloa²

¹NHMFL & Florida State U -- ²Ohio University NSF 0336431

Spin-orbit coupling in quantum dots induces *intrinsic* level mixing that produces *non-pure* spins, shortens spin relaxation lifetimes and results in *anisotropic* g-factors for the electron.

Anisotropic g-factor in quantum dots



This result may facilitate the use of quantum dots in the design of spin quantum bits proposed for quantum information.

C. Destefani et al. Phys. Rev. B **69**, 125302 (2004).

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Education:

Doctoral students from Argentina (Carla Romano), Brazil (Carlos Destefani and Edson Vernek), and Ohio (Ahn Ngo) have participated in work supported by this grant. Moreover, postdoctoral fellows Carlos Busser (Argentina/US), and Luis G. Dias da Silva (Brazil/US) are actively working on different aspects of this project. These young researchers have traveled to Ohio for intense exchanges and discussion of results.



Carla Romano, graduate student from U of Buenos Aires, presents a seminar at Ohio U on her work on spin-orbit effects in quantum dots in semiconductor nanorods.