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Nuclear Magnetic Resonance in Semiconductor Nanostructures[1]

IONEL TIFREA, Cal State Fullerton — One measurement for the nuclear spin dynamics in solid state systems is the Knight shift observed in nuclear magnetic resonance experiments. I will present a theoretical investigation of the Knight shift in samples with reduced dimensionality. The nuclear spin dynamics is dominated by the hyperfine interaction between nuclear and electronic spins and depends on the electronic local density of states. As an example, I will discuss the temperature, position, and time dependence of the induced nuclear spin polarization and the resulting Knight shift in semiconductor quantum wells.

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