

Abstract Submitted
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Rb Magnetic Resonance Near Coated Glass Surfaces in an Inhomogeneous Field¹ KAIFENG ZHAO, M. SCHADEN, Z. WU, Rutgers University - Newark — Evanescent waves are used to measure the rf magnetic resonance signal of Rb spin polarization near Pyrex glass surfaces coated with anti-relaxation coatings in an inhomogeneous magnetic field. The signal shows an asymmetric line shape, with one side having approximately Lorentzian profile and the other side being inhomogeneously broadened. The origin of this asymmetry is due to the diffusion of spins. We studied its dependence on buffer gas pressure, cell thickness, field gradient and rf amplitude modulation rate. A theoretical model is developed to understand this line shape. Interesting characteristics of atom- surface interaction, such as dwell time, collision relaxation rate and de-phasing on the surface, can be estimated by fitting the measured line shape with the calculated one.

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