Study of surface interactions of spin polarized Rb atoms in coated cells using the evanescent wave magnetometer\textsuperscript{1} K.F. ZHAO, M. SCHADEN, Dept. of Phys, Rutgers University - Newark, Z. WU, Rutgers University - Newark — We describe a new method of studying surface interactions of spin polarized rubidium atoms on silicone-coated Pyrex glass surfaces by operating the evanescent wave magnetometer in an inhomogeneous magnetic field. By analyzing the lineshape of the magnetic resonances using a theory we developed, we can estimate various parameters that characterize the surface interactions. Most interestingly, the line-shape is very sensitive to the phase shift of the Rb atom while it is on the surface. We measured for typical Surfasil(silicone) coated cells.

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K.F. Zhao
Dept. of Phys, Rutgers University - Newark

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