

Spin Coupling Resonances in the AGS*

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In the AGS, spin resonances due to coupling may account for as much as a 30-40 percent loss in polarization. The major sources of coupling in the AGS are the solenoidal snake and rolls in the main magnets. In the past some preliminary work was done to understand this phenomena [1]. In the polarized proton run of 2002 we sought to study more thoroughly the response of these coupled spin resonances to the strength of the solenoidal snake, skew quadrupoles and vertical and horizontal betatron tune separation. In this paper we present our results and compare them with those predicted by a modified DEPOL program [2] and consider ways to suppress these resonances using a second family of skew quadrupoles.

References

- [1] H. Huang, Ph.D Thesis, Indiana University (1994)
- [2] V.Ranjbar et al., Mapping out the full spin resonance structure of RHIC, PAC2001

*Work performed under the auspices of the US Department of Energy