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Polarized Proton Fast Quad Tests

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AGS STUDIES REPORT

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Experimenters L.A. Ahrens, L.G. Ratner, Fast Quad Group

Reported by L.G. Ratner

Subject Polarized Proton Fast Quad Tests

OBSERVATIONS AND CONCLUSION

Each quad (A, D, G, J) was separately energized for the first time since the reinsulation and installation was completed. All quads behaved well electrically and gave the same polarity and magnitude of vertical tune shift ($\Delta\nu = -0.036$). Measurements were made by exciting the beam with the tune meter about 200 μsec after the fast pulse and where the slow decay was only down by a few percent.

The quads were pulsed at 8739 OGCC at which time the rf f = 4.3736 mHz. This is a change of +11 kHz from the 4.3629 we had last summer. A recalibration of the Gauss Clock seems to be necessary since this represents some 700 GCC.

The induced tune oscillations showed different behavior with G and J having about 4X vertical response of A and D. Horizontally, A and G were about as large as vertical but D and J showed a much smaller response (1/6). The PUE orbit results are clouded by the existence of a large 9th harmonic which is influenced by the quad tune shift. Further investigations to try and find unambiguous ΔX, ΔY deflections will be done as well as IPM measurements to determine any beam size changes.

mvh

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