

Haixin presented analysis results of the RHIC fills sampled in Carlos' presentation. Based on RHIC IPM and Luminosity data, beam size jumping of 30% at store shown in two fills (one blue and one yellow) was not real. Haixin also presented the correlation between horizontal emittance at store and flatness of polarization profile. For the samples given by Carlos, it seems that a larger store horizontal emittance correspond to narrower polarization profile, at least in blue. For yellow ring, most flat polarization profiles were at 31 GeV, which may indicate that the resonances between 31 GeV and 100 GeV are more harmful. Thomas commented that we should be very careful about this correlation. At a given point in the lattice for a given target position (or betatron amplitude), the beta function and resonance strength are fixed. the polarization loss due horizontal resonances should be constant for the particular target position, although the effect from horizontal angle (large or small horizontal emittances) could be different. This effect could still contribute to the correlation. He noticed that all so-called flat profiles are with large error bars (16 ± 16 mm, for example). This could be due to the fact that when beam size indeed is small, the events would be dominated by the central part and the fitting would be poor. The polarization profile may always have a σ of 3-4 mm but sometimes it was not well measured. Nevertheless, this polarization profile can be used to estimate any polarization loss due to horizontal resonances on the energy ramp, as what we did for AGS. Besides the correlation with emittance, we should also look at horizontal tunes around several important resonances. Dejan commented that these results shows that the tune and coupling feedback are important for next polarized proton run.

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