

AGS Cold Snake Status and Plan

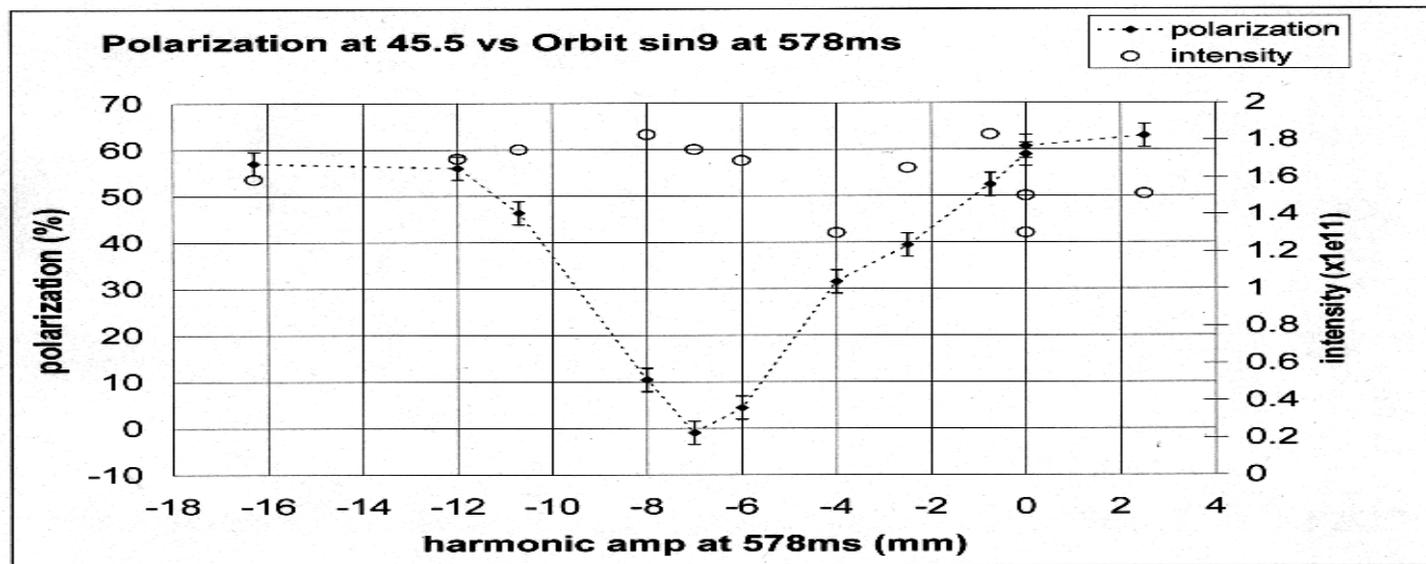
Haixin Huang

Apr 18, 2006

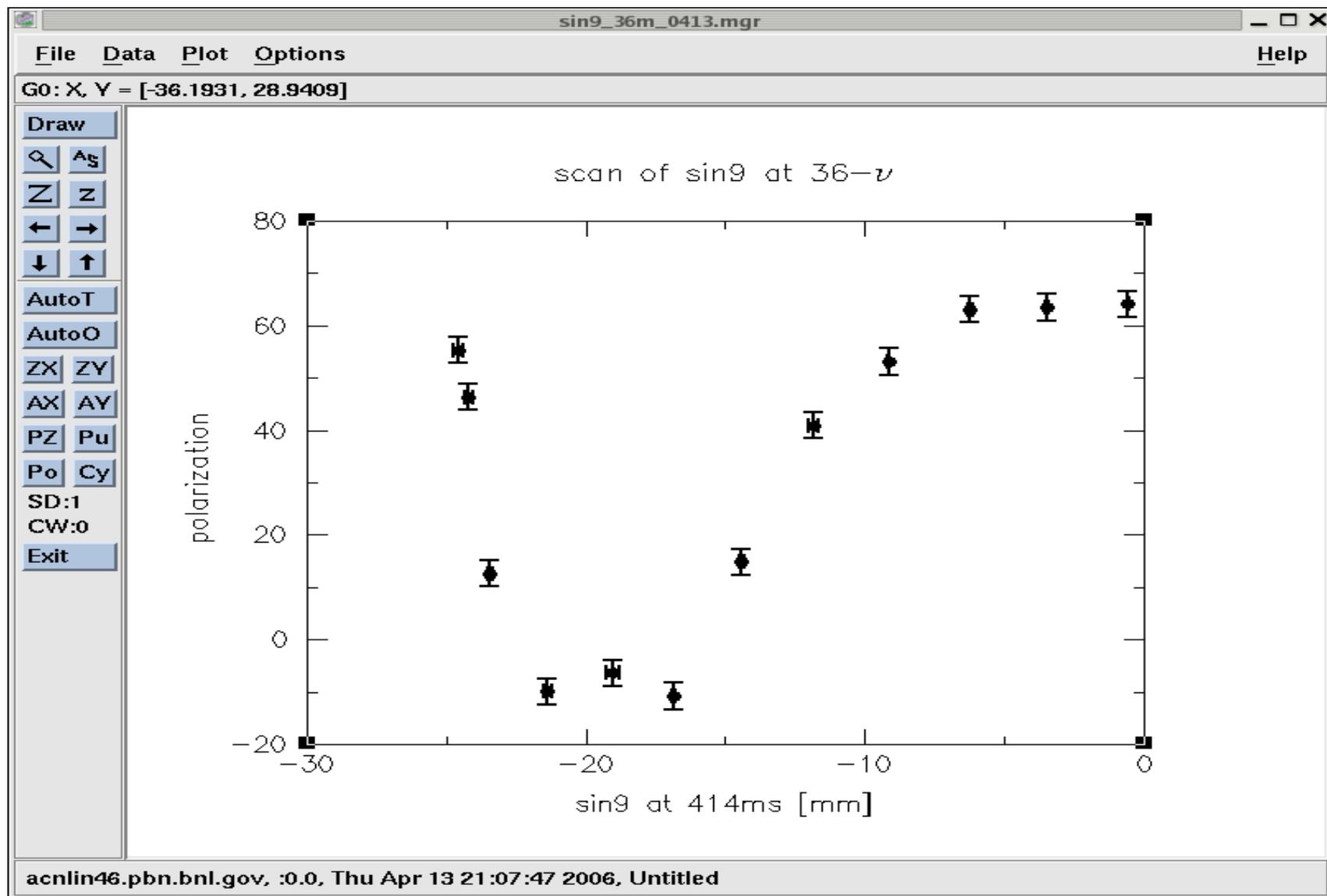


Sine 9th vertical harmonic scan at 36+

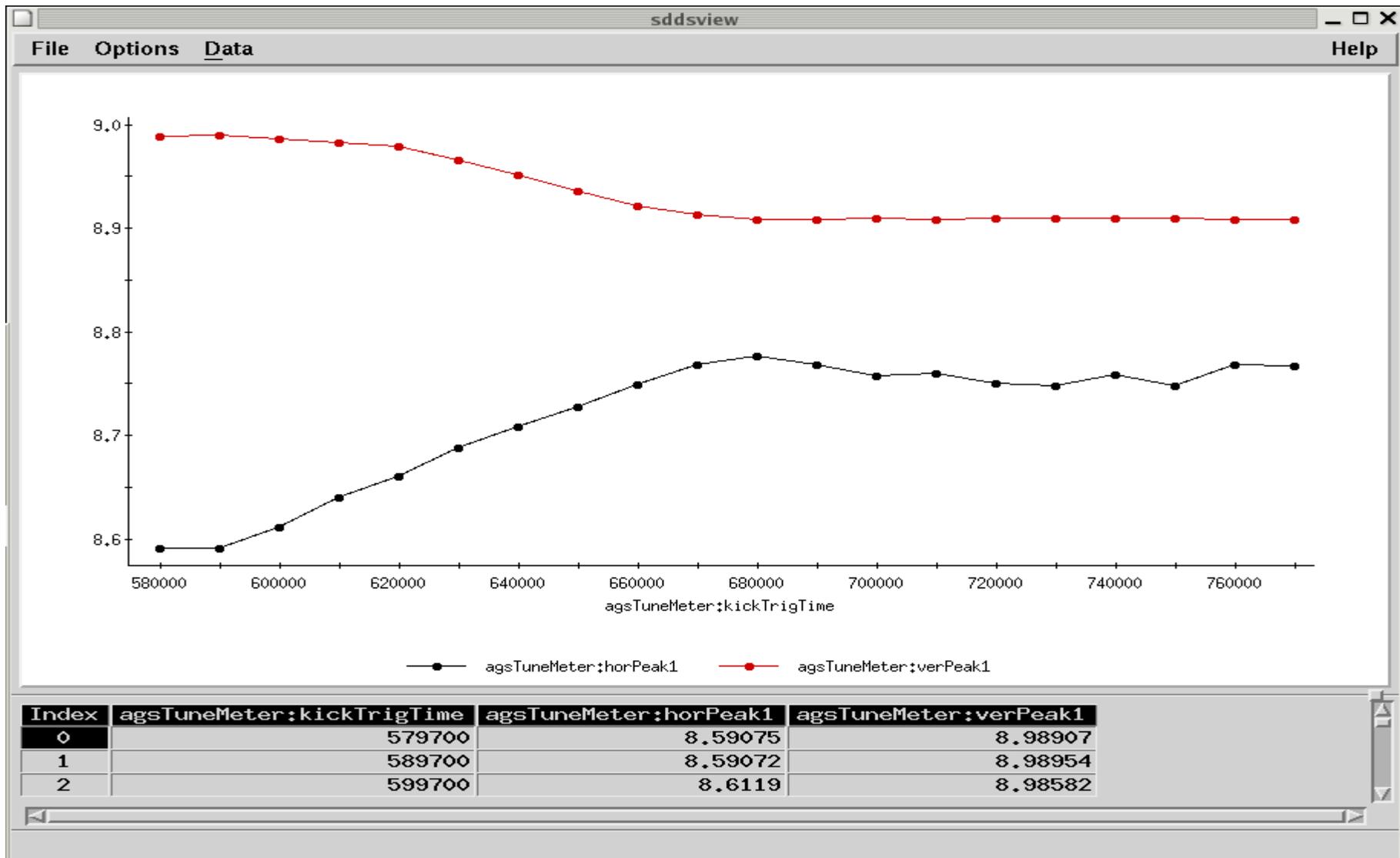
When sine 9th vertical harmonics is in phase with snake and completely cancelled the snakes, polarization is zero. Larger sine 9th acts as a partial snake to maintain polarization.



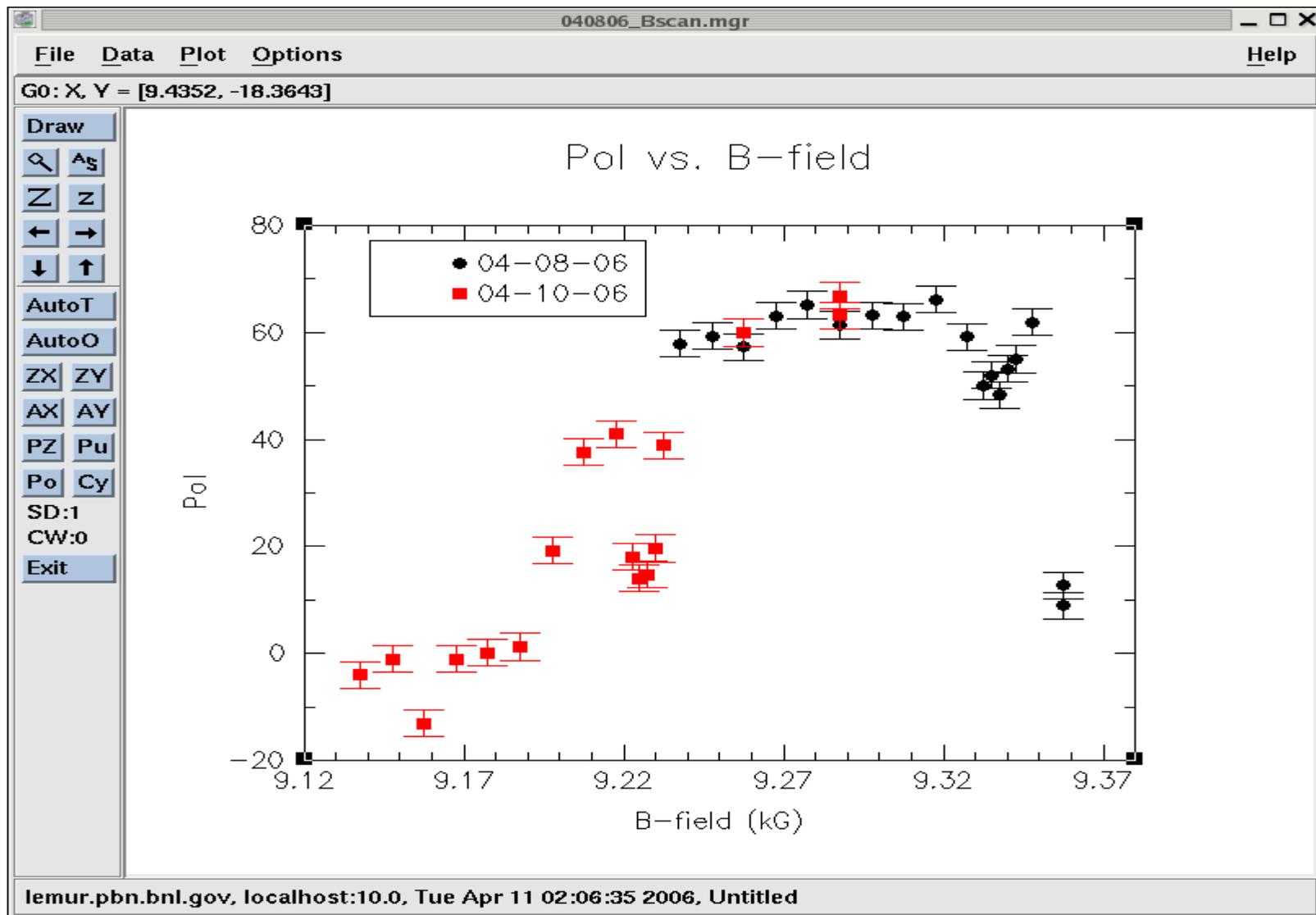
Sine 9th vertical harmonic scan at 36-



Tunes around Flattop

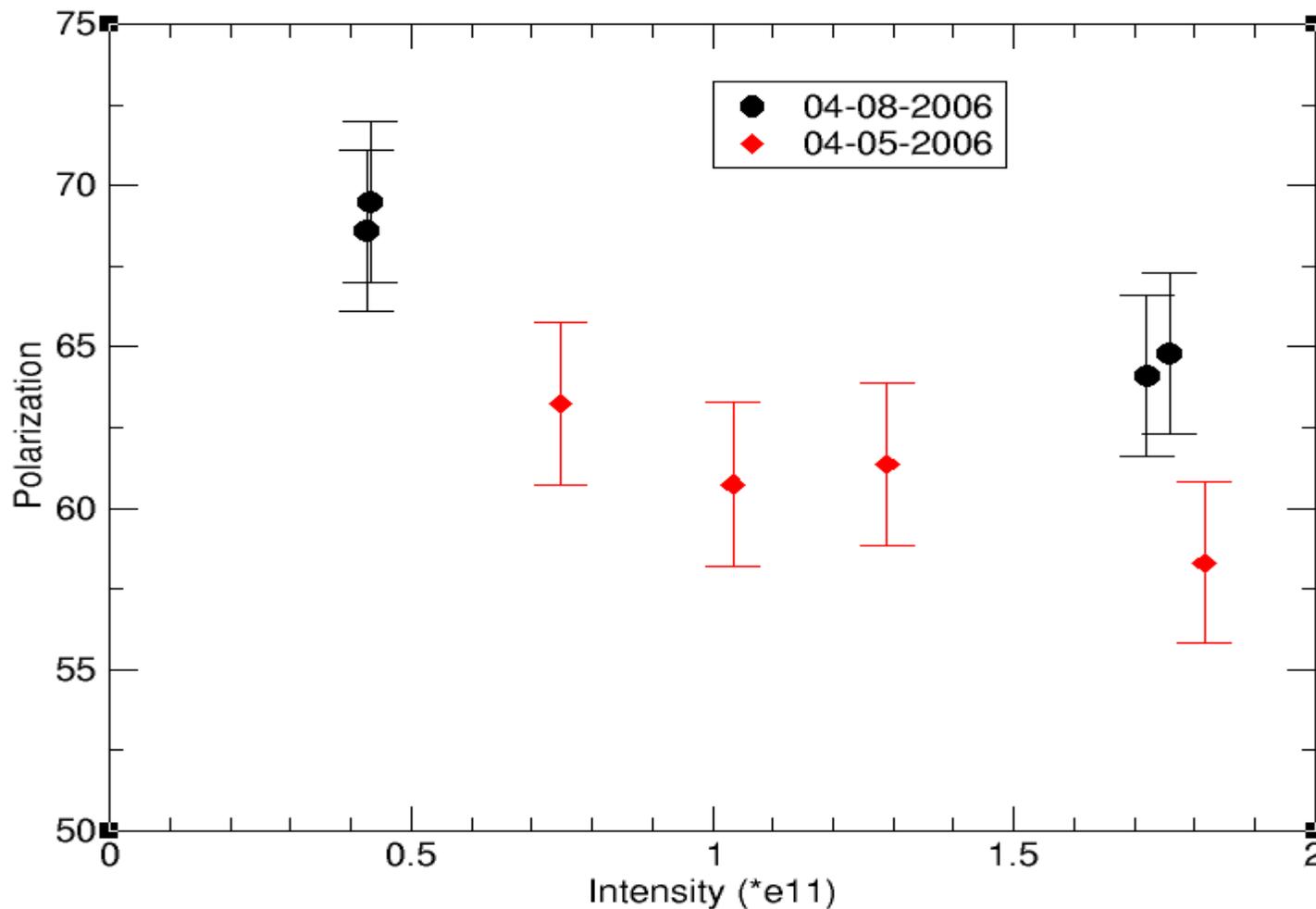


B Field Scan for Higher ν_x (~8.8)



AGS Injection Intensity Scan

Polarization vs. Intensity



Status and Plan

- Use vertical scraping in the Booster and source polarization 80%, we get polarization 60% with 1.5×10^{11} .
- The vertical sine 9th harmonics is important to maintain polarization high, even in the presence of two partial snakes. We see strong correlation between the sine 9th harmonics and polarization at 36+, even at 36-.
- We had the first AGS cold snake quench during operation! It is not beam related, instead it was due to software error caused heater turned on while resetting RHIC snakes. The recover time was less than 4 hours. The control problem has been addressed.
- Horizontal tune was raised at flattop to give wider flat polarization region. It will be put into use for RHIC soon.
- Restore AGS back to operation. Switch to higher horizontal tune at flattop. Fine tune scan at 36+ and 36-. We will then move on to lower horizontal tune (~ 8) setup on another AGS user.