

Polarized ^3He Target Lab Status

Vincent Sulkosky

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Work Completed:

- Studied NMR-EPR discrepancy
 - Volumes from buoyancy method
 - Q-curve and gain
 - Gain from pre-amplifier
 - Individual water signals
 - Flux
 - Water signal height

Conclusion: Water signal height is incorrect!

- Pre-amplifier gain studies
 - Water calibration in April at 100x gain
 - Discrepancy of 2.0/1.6 between 200 and 100x gain
 - Series of pre-amplifier gain test at 50, 100 and 200x gain with inverse button off and on (May 16-20, 2002)

Possible conclusions:

- Pre-amplifier gain is inconsistent
- Pre-amp gain was in an uncalibrated mode

Work Completed (Cont.):

- Tested cells
- Transverse Tests on Exodus
- Density corrected for etalon effect
- EPR fiber optics tests (Long. and Transverse)

Target system designs:

- Front flange removed from pick-up coils, due: June 3rd
- Fiber coupler mount for EPR (Being designed by Susan Esp)
- Possible modifications to coupler (Being designed by Susan Esp)

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Future Work

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Target work:

- Short range plan \sim June
 - Optimize polarization using fourth laser
 - Calibrate pre-amplifier
 - Wall thickness for new 40 cm water cell
 - Study effect of couplers on helium and water signals
 - Test new cells
 - Test EPR coupler system (Long. and Transverse)
 - Test new pick-up coils
 - Water calibrations with new water cell and ice cone cell
 - Spectrum Analyzer tests
- Long range plan \sim few months
 - Density and Wall thickness for new cells (REU student)
 - Move polarized ^3He system to Hall A (July)

Detector Work:

- Calibrate gas cherenkov both arms
- Calibrate shower and pion rejector
- Study PID efficiency