Jefferson Lab Target Status & Update

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Outline

1. William & Mary Update

2. Laser Fibers

3. Oven Update

William & Mary Update

- Cell Fill
- Hybrid EPR
- Double Coils

William & Mary Update

Cell Fill

- Filled "Gee Whiz"
  - From Willie
  - 40 cm
  - G_E^n Geometry
  - small pumping chamber
  - Rb only
- Measured polarization (using EPR) – 30%
- Measured lifetime – 16hrs

William & Mary Update

Hybrid EPR

PI box is very unstable, but still get spin flips

- f_{hybrid} ≈19Mhz
- but circuit (following Schaffer) designed for 5 Mhz
- already at 2x the frequency for Rb (f_{hybrid} ≈11Mhz)

William & Mary Update

Hybrid EPR

Bottom Line: Much lower noise, but dominant background is still oscillation of circuit at natural frequency

This can even been seen on helium signals.

5 – 1 Combiner

Results of Most Recent Tests

Fiber Number	Comment
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SN001	Slight damage from our testing procedures – visible under 40x microscope.
SN002	Total Failure – smoked when used the first time. After that, zero transmitted power
SN003	83.5% transmitted
SN004	87.7% transmitted
SN005	85.8% transmitted
SN006	82.8% transmitted
SN007	85.2% transmitted
SN008	87.7% transmitted
SN009	42.3% transmitted – kink in fiber seems to indicate a broken fiber not likely resulting from our tests
SN010	89.4% transmitted

Oven Update

- Acquired Aluminum mock-up of oven
- Built a support and heating sytem
- Successfully reached hybrid temperatures.
- Still some fine tuning to be done