

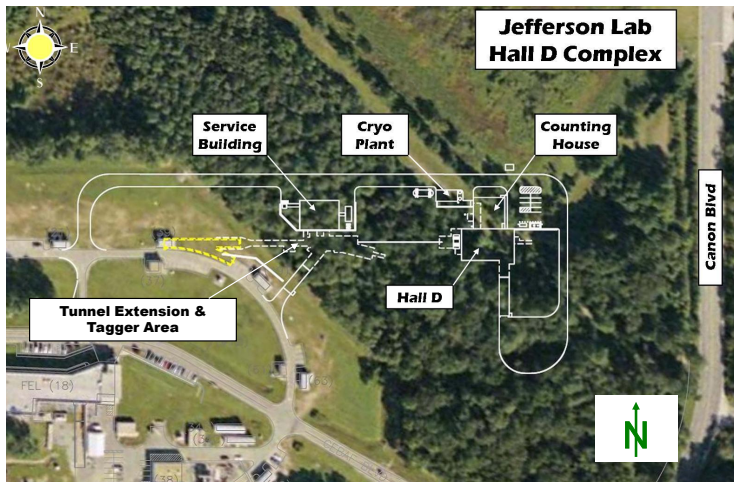
Hall D Beam Tagger Review: Introduction and Charge

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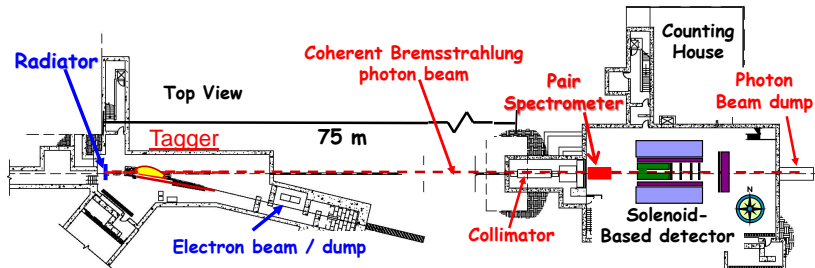
Tagger magnet review, JLab, 2009

Hall D Project



New beamline: photon beam with unique properties
New experimental hall

Hall D and the beamline



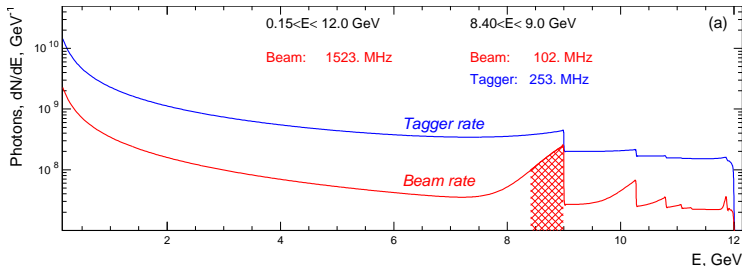
Physics: beam requirements

- GlueX - search for “hybrids”
⇒ polarized tagged photons
- PRIMEX - precise $\sigma_{Primakoff}$
⇒ tagged photons, stability

Beam features

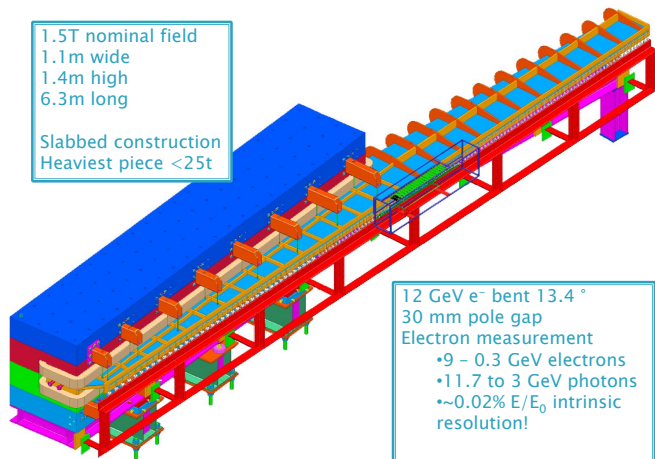
- e^- 12 GeV $< 3\mu A$
- Radiator (diamond 10^{-4} RL)
- e^- non-radiated → dump, radiated → p measured
- Collimation ~ 75 m down

Photon Beam



- Diamond \Rightarrow coherent radiation at $\theta < 25 \mu\text{rad}$, $\Delta E_{\text{coh}} \Rightarrow$ linear polarization
- Tagger: Fixed Array: $\frac{\sigma_E}{E} \sim 0.3\%$ Microscope: $\frac{\sigma_E}{E} \sim 0.1\%$
 - 8.4 – 9.0 GeV coherent: GlueX Microscope
 - 3.0 – 9.0 GeV: diamond alignment Fixed Array (sampled)
 - 9.0 – 11.7 GeV: PRIMEX, charm... Fixed Array, moved Microscope
- Resolution requirements: $< 0.5\%$ - GlueX; $< 0.1\%$ - PRIMEX

Tagger Magnet



Scheduled procurement: FY 2010-2011; Budget: **\$1.16M**

Previous Reviews

- *Jan 2006: Hall D Tagging Spectrometer Review:*
all recommendations closed
- *Nov 2008: Hall D Beamline & Tagger Review:*
no recommendation

The Goals of this Review

- 1 Evaluate the tagger magnet specs and the basic design
- 2 Advise on the procurement strategy

Charge

- 1 Are the magnetic, mechanical and electrical requirements for the tagger magnet adequately defined?
- 2 Is the reference design adequately defined at this point in time to address all requirements?
- 3 Is the reference design adequately developed to justify completing the design in house or should the final design be sub-contracted to an external source?
- 4 Is the procurement schedule and plan reasonable? Is it reasonable to assume that the complete package can be sub-contracted to one company? Should the procurements be broken up?
- 5 Have ES&H considerations been adequately incorporated into the in-hall installation plans and the design at their present stage?