…A high luminosity detector for measuring cross sections of interest to nuclear astrophysics with a Bremsstrahlung beam…

1. Introduction (Claudio U.,..)

(astrophysical interest of and technical difficulties with measuring (a,g) reactions. Some examples: 12C(a,g), d,t(a,g)6,7Li, 15N(a,g); are there others(?); where are (a,g) measurements usually done; how long do they take, what are the present limits of cross sections. What are luminosities of present experiments. What are the advantages of (g,a) vs. (a,g): cross section ratio from reciprocity theorem, use of thicker targets. Luminosities for (g,a) at existing gamma facilities. Still problems with isotopic purity (also with (a,g) experiments). Will discuss 15N(a,g) via 19F(g,a).

1. Experimental details
2. Detector (Brad D., Ernst R.,..)

Earlier papers (PLB and NIM) describe first experiments reaching limits of 3 nb limited by accelerator issues. Developed single fluid bubble chamber. Describe detector and tests with n-source.

1. Bremsstrahlung beam (Riad S., Seamus R.)

 What is different with a Bremsstrahlung beam, unfolding procedures

1. Energy measurements at JLAB (Alicia)
2. Background issues (Seamus R.,..)

Cosmic, wall events (10B), neutrons from d, 17O,…

1. Beam profile, current measurement at (JLAB)
2. Experimental Results for 19F(g,a) (Claudio U., David,.. )
3. Future improvements and plans (all)