

Features of the E-144 CCD Spectrometer, VI γ -Line Configuration for Dec. 1995

In conjunction with the setup for E-152 we propose several changes to the E-144 γ -line for Dec. 1995. This note only sketches these changes; further details will follow.

1. The present γ -convertor should be relocated to a position just upstream of the 5D36 magnet. This would greatly reduce the separation between electrons and positrons from converted γ 's at the center of the magnet, and improve the CCD track matching.
2. The new movable collimators (called COLA and COLB by me) should be installed; COLA will be as far upstream as possible, a few meter downstream of IP2 and upstream of CCM1; COLB will be near the present COL2 just upstream of the 5D36 magnet. The Argonne design for these collimators allows their length to be at most 5 cm each. I would greatly prefer 15 cm each. New sections of pipe would have to be built to accommodate the longer collimators; I estimate them to be 60 cm long each.
3. The fixed collimators COL1 and COL2 should have their apertures enlarged. A preliminary size is $5.6 \times 5.6 \text{ mm}^2$ for COL1 (presently $2.88 \times 3.60 \text{ mm}^2$) and $10 \times 10 \text{ mm}^2$ for COL2 (presently $6.00 \times 6.30 \text{ mm}^2$). The new apertures correspond to $\pm 120 \mu\text{rad}$.
4. The vacuum pipe downstream of the second CCD box must be changed significantly to accommodate the new silicon calorimeters. The narrow section of beampipe downstream of the CCD'ss should be changed to xx diameter from its present value of 7/16" to allow for the larger cone of synchrotron radiation passed by the new, larger-aperture collimators upstream.