Physics 252 – Reading Exercise #6

(due Tuesday, May 17)

Read the paper:

M. Banner, *et al.*, Phys. Lett. **118 B**, 203 (1982)

Write a brief summary of this paper. Include answers to the questions below.

This paper studies proton-antiproton collisions at $E_{CM} = 540$ GeV. For orientation, *transverse energy* E_T is calorimetrically measured energy projected onto directions perpendicular to the beam axis ($E_T = E \sin\theta$).

1. What is the observation claimed in this paper?
2. Describe the apparatus. How large is it? What are the relative roles of tracking, electromagnetic calorimetry, and hadron calorimetry?
3. The paper claims that large deposited E_T is associated with clusters. How is a *cluster* defined?
4. What do we learn about the two-cluster systems from Fig. 3(a)? From Fig 3(b)?
5. What is the signficance of the plots in Fig. 5?
6. What events contribute to the measured jet cross section plotted in Fig. 6?