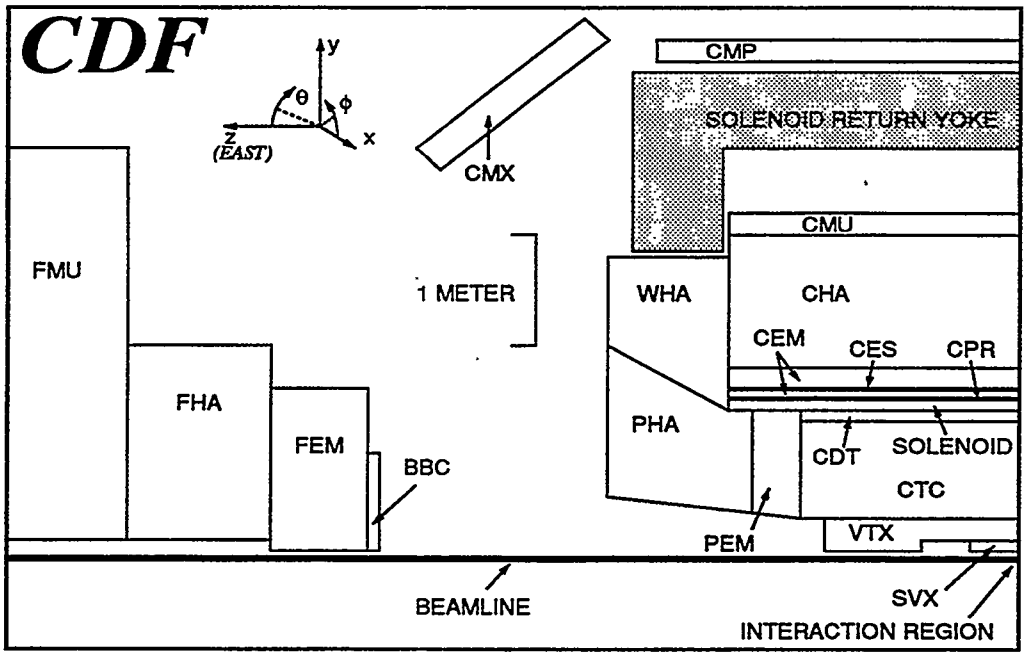

Figure 3: A schematic view of one quarter of the CDF detector. The interaction point is at the lower right corner of the figure.

used to detect hadronic showers. Plug and Forward calorimeters instrument the region $1.1 < |\eta| < 4.2$, and consist of similar absorber material. The showers are detected with proportional wire chambers as they provide for a radiation resistant detector system. The presence of solenoid magnet and a significant amount of material in front of the calorimeter leads to some compromise in calorimeter performance. The overall resolution of the CDF calorimeter is

$$\frac{\sigma_E}{E} = \frac{0.137}{\sqrt{E}} \oplus 0.02 \quad \text{(for electromagnetic showers)} \tag{9}$$

$$\frac{\sigma_E}{E} = \frac{0.50}{\sqrt{E}} \oplus 0.03 \quad \text{(for hadrons).} \tag{10}$$

Planar drift chambers located outside the calorimeter volume detect muons penetrating the calorimeter absorber, but precise muon momentum and direction come from the associated charged track detected in the inner tracking system. The central muon system is able to detect muons within the pseudorapidity interval $|\eta| < 1.0$. A forward muon system (FMU) consisting of large toriodal magnets surrounded by drift chambers and scintillator counters detect muons in the rapidity region $2.2 \leq |\eta| \leq 3.5$.

5.3 Triggering and Data Acquisition

Pair production of standard model top quarks and their subsequent decay into either the dilepton or lepton+jets mode yields a signature that is relatively straightforward to trigger on. Both detectors employ multi-level trigger systems where at each