In addition, we used special triggers to collect pedestal values, create laser tracks in the TPC, and test all of the electronics for the TPC, FTPC, TRG, RICH, pTOF, FPD, BEMC, and SVT.

The central (CENT) and hadronic min bias (HMB) triggers were based on neutrons detected in the ZDCs and on charged particles detected in the CTB. The correlation between these signals is shown in Figure 4 for data that passed all of the trigger and analysis cuts that required tracking to point to a good central vertex for the interaction. In terms of impact parameter, the figure shows that there is a region of strong forward neutron production during which there are few charged tracks produced in the CTB (region I, characterized by $\sum CTB \leq 1500$), followed by an anti-correlation in ZDC vs.CTB signals (region II $1500 \leq \sum CTB \leq\sim 20000$), and ending in a region (III $\sum CTB \geq\sim 20000$) of high charged particle multiplicity with low neutron signal. These are interpreted as large impact parameters in region I and very small impact parameters (central collisions) in region III.

Extrapolating minimum ionizing tracks from the TPC onto CTB slats indicated that a typical minimum ionizing particle (mip) in the center of a slat gave a signal of 5 counts. In 2000 we used a simple ADC sum to indicate multiplicity, while in 2001 we used a combination of ADC sum and MIP sum in which the ADC values were converted to MIP counts. A histogram of the CTB multiplicity for tracked events triggered by the CTB above a low threshold gives the CTB Multiplicity distribution. For the CENT trigger the cut for threshold 2 was at 2000 and for threshold 3 was at 6000 MIPs.

The ultra peripheral collision (UPC) program has so far required the greatest flexibility in our trigger, although we expect the spin program to hold that distinction soon. The UPC trigger divides the CTB into 16 sections, four in ϕ by four in η, just like the coarse pixel array. It then makes use of the DSM look-up-tables (LUT) to map 8 bit ADC values into mip counts, taking out the lowest order bit which is packed as the timing bit by the CDB. It then asks for back-to-back pairs of hits looking at the geometry of the CTB and selects collisions in which there are 2 or 4 tracks which have characteristic back-to-back geometry, eliminating high multiplicities and highly asymetric events. The UPC trigger also vetoes events having hits on the top ($-\pi/4 < \phi < \pi/4$) or bottom ($3\pi/4 < \phi < 5\pi/4$) of the TPC , since these are dominated by cosmic rays. When these conditions are met the UPC bit is set and sent to the TCU. Using this trigger, the UPC group has found a large enhancement in reconstructable resonances compared to a similar number of events taken with just a low multiplicity trigger.