

Average LAr Beam Splash Plots 2015

The plots in the following show energy distributions recorded by the ATLAS LAr calorimeters during the beam “splash” events from April 7, 2015. During these beam “splashes” one LHC beam was hitting the tertiary colimator approx. 175m upstream of ATLAS immediately after injection and hence was producing a “splash” of particles heading towards the ATLAS detector. “Splashes” from beam 1 which traverse the ATLAS detector from A-side to C-side (opposite orientation of z-axis) were followed by beam 2 “splashes” (C-side to A-side) on the same day. Public ATLAS event displays from 2015 “splashes” can be found at <https://twiki.cern.ch/twiki/bin/view/AtlasPublic/EventDisplayRun2Start>.

ATLAS Preliminary LAr Barrel
 Run 260466 Tue Apr 7 2015
 Composite Average of 63 Splash Events

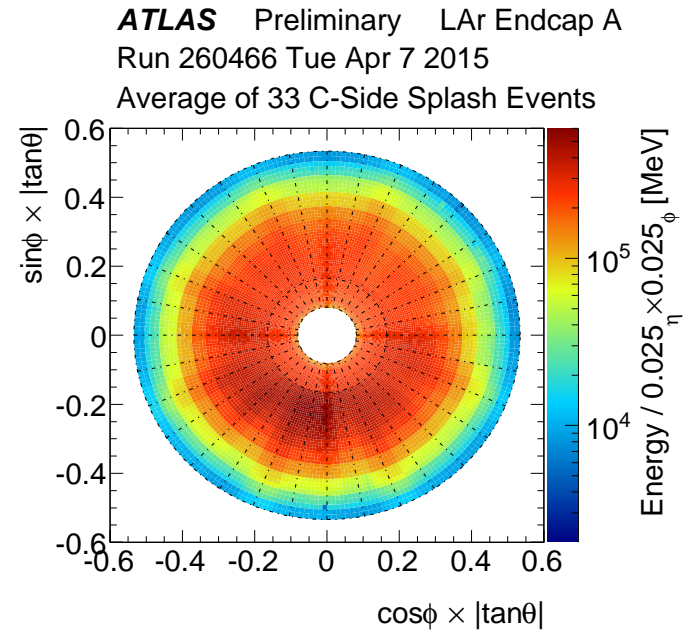
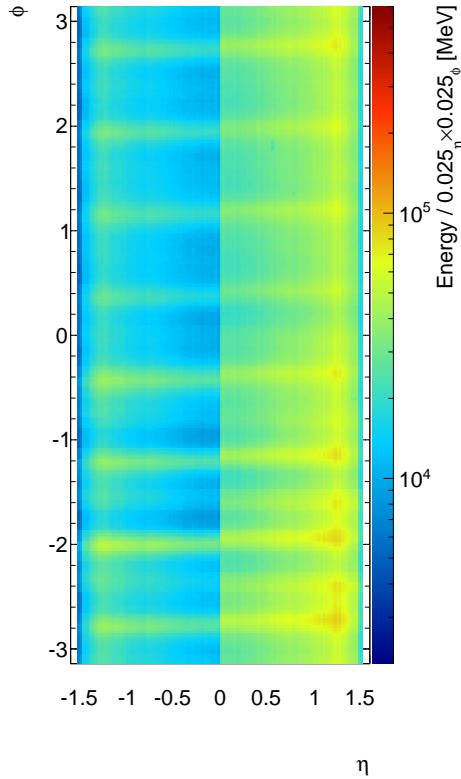
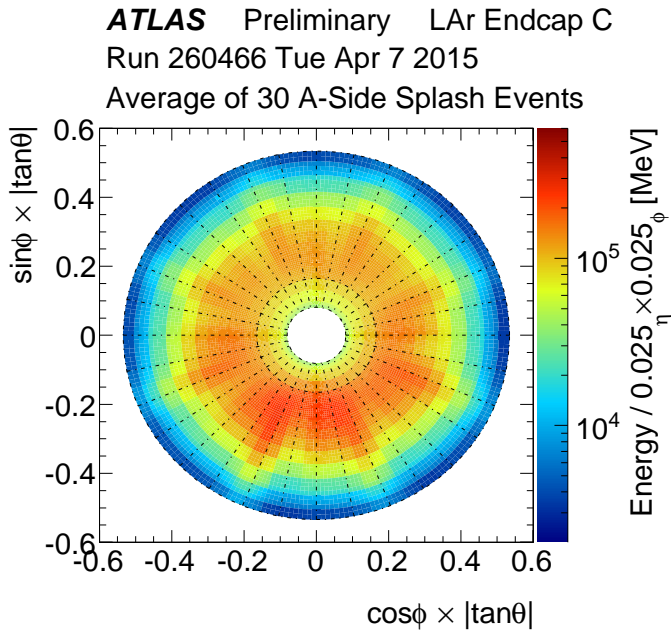


Figure 1: Average LAr cell energy sums (without FCal) distributed in a hypothetical tower grid with $\Delta\eta \times \Delta\phi = 0.025 \times 0.025$ for 63 beam splash events from April 2015. From left to right the plots show the summed average energies in the endcap C, in the barrel and in the endcap A. For $\eta < 0$ and the endcap C 30 events, where the particles entered from the positive η (A) side are averaged over while the average for $\eta > 0$ and the endcap A uses 33 events, where the particles entered from the negative η (C) side. In total the displayed LAr layers recorded 3.5 PeV (7.0 PeV) on average per event for particles entering from the A (C) side. The visible regular eight-fold pattern in ϕ stems from the material in the endcap toroid magnets shadowing the incoming particles.