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Measurement of underlying event characteristics using charged particles in pp collisions at $\sqrt{s} = 7TeV$ with the ATLAS detector at the LHC JOSEPH VIRZI, Lawrence Berkeley National Laboratory / UC Berkeley — We construct "track jets" by applying an anti-Kt algorithm to charged tracks reconstructed in the ATLAS detector, and measure charged particle distributions in the region transverse to the track jet with largest p_T (leading track jet). The measurements are based on data collected using a minimum bias trigger to select proton-proton collisions at 7 TeV center-of-mass energy at the Large Hadron Collider. The underlying event (UE) is defined as those aspects of a hadronic interaction attributed not to the hard scattering process, but rather to the accompanying interactions of the rest of the proton. We characterize the underlying event by measuring the Σp_T and multiplicity for tracks transverse to the leading jet. The transverse region is defined by $2\pi/3 \leq \phi < 4\pi/3$, where ϕ is the azimuthal angle defined relative to the leading track jet. Tracks and jets are required to have $|\eta| \leq 1.9$. The data show a higher underlying event activity than that predicted by Monte Carlo models tuned to pre-LHC data.

Joseph Virzi
Lawrence Berkeley National Laboratory / UC Berkeley

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