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Angular Correlation Functions of High pT Charged Hadrons in pp, PbPb, and pPb Collision Monte-Carlo Simulations GABRIEL BONILLA, Univ of California - Davis — The quark-gluon plasma has a role in understanding the strong force, which is described by the theory of quantum chromodynamics. To probe the quark-gluon plasma, heavy ions are collided at high energies to recreate the conditions present in the early universe. Experiments like the Compact Muon Solenoid (CMS) at the Large Hadron Collider examine the results of colliding heavy nuclei together at high energies to recreate the quark gluon plasma. One such observation is jet quenching, which is believed to occur when the jets of particles produced in the collision interact with the plasma and lose energy. In this study, we use the PYTHIA, HYDJET (Hydrodynamics plus Jets) and UrQMD (Ultrarelativistic Quantum Molecular Dynamics) Monte-Carlo simulation programs to observe how the angular correlations of the jets of particles created in collisions vary across the choice of collision system (proton-proton, proton-lead, lead-lead). We will also look at the behavior of these angular correlations to help us understand the mechanisms of energy loss.

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