Event-by-Event Charged-particle Fluctuations in Central Pb-Pb Collisions at $\sqrt{s_{NN}} = 17\ GeV$

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Abstract

We report results of an extended study of event-wise mean-p_t fluctuations, charged-particle multiplicity fluctuations and multiplicity-mean p_t correlations for unidentified hadrons with respect to particle charge. ¿From $< p_t >$ fluctuation studies we observe significant departures from a central-limit reference which suggest the presence of an isospin-dependent contribution to nonstatistical fluctuations. From charge-multiplicity studies we observe deviations from a central-limit reference consistent with resonance correlations but inconsistent with the substantial reduction of fluctuations predicted for rapid transition from a prehadronic state. We also observe significant multiplicity-$< p_t >$ correlations which may provide information on local measure conservation and the remnants of initial-state scattering.

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