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Hunting for the critical point — recent NA61/SHINE results

The fixed-target NA61/SHINE experiment at the CERN Super Proton Synchrotron (SPS) seeks to find the critical point (CR) of strongly interacting matter and the properties of the onset of deconfinement. The experiment provides a scan of measurements of particle spectra and fluctuations in proton-proton, proton-nucleus, and nucleus-nucleus interactions as functions of collision energy and system size, corresponding to a two-dimensional phase diagram ($T-\mu_B$). This gives also a unique insight into the onset of deconfinement in light and medium-size systems.

New NA61/SHINE results are shown here, including transverse momentum and multiplicity fluctuations in Ar+Sc collisions compared to NA61 p+p and Be+Be data, and proton and charged hadron intermittency results in Ar+Sc and Pb+Pb collisions.

Recently, the effects of change in the system size dependence, labeled as the “onset of fireball”, were observed in NA61/SHINE data - with some unexpected system size dependence, however.

Primary author: TURKO, Ludwik (University of Wroclaw)

Presenter: TURKO, Ludwik (University of Wroclaw)