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Open and hidden strangeness in central A+A collisions from SPS to LHC: ratios of transverse energy density at midrapidity for the identified hadrons with different strangeness content

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We continue studies of the effects previously observed in very central (0-5% class) relativistic heavy-ion collisions where we found that the ratios of the Bjorken energy density fractions, relevant to the identified hadrons, practically are not depending on the collision energy in all cases of open and hidden strangeness [1]. In our new work, we include into the analysis the additional HEP data on the yields of particles containing one, two or three strange quarks. This includes Λ barion and Kos meson , Ξ and Ω hyperons yields measured in Au-Au and Pb-Pb collisions at √sNN = 39 GeV, 200GeV and 2.76 TeV. The particle HEP data spectra were approximated in each case by the Levy functions, and in such way the relevant mean p_t was obtained and used in the calculations of the mean transverse energy density at midrapidity for the particle (i) of interest. The Blast Wave approximation for the spectra shape was also used to compare and to estimate the systematic error of mean p_t and of the relevant mean (dEt/dy)i . Finally, the ratios were obtained of mean (dEt/dy) ϕ /(dEt/dy)i – for ϕ-mesons and other particles, registered at midrapidity in central A+A collisions. The results are discussed. The authors acknowledge Saint-Petersburg State University for a research project 95413904 References: [1] O. Shaposhnikova, A. Marova and G. Feofilov, Open and Hidden Strangeness with Kaons and ϕ-Mesons in Bjorken Energy Density Approach for Central Collisions from SPS to LHC, Physics of Particles and Nuclei, 2024, Vol. 55, No. 4, pp. 1134–1139. © Pleiades Publishing, Ltd., 2024.

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