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Ratios of the average transverse energy density for φ , K+, K- and K* mesons in the range √sNN= 39 GeV - 2.76 TeV and hypothesis of a common production source

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We investigate the collision energy dependence of the average transverse energy < (dE_t)/(dy)> at midrapidity registered at midrapidity (|y|<0.5) for identified particles (φ , K+, K- and K*mesons) produced in central Au+Au and Pb+Pb collisions over a broad energy range from RHIC to LHC (39 GeV –5020 GeV). Resonances like φ and K* have different hadronic cross sections, masses and lifetimes and can be used to study the properties and evolution of the hot and dense QGP medium produced in high energy nucleus-nucleus collisions. Of a peculiar interest is the mechanisms of production of these particles, containing one strange quark.
We present in this report our results of calculations of the average transverse energy at midrapidity using the published data on particle density < (dN)/(dy) > and the mean transverse momenta<p_t > $for, K+, K-andK*mesonsformedinverycentral(0-5\%)Au+AuandPb+Pbcollisions.Wefoundthat, similartoourpreviousstudiesforan$
$lawfunctionoftheform\sim Q(sNN)n, Ourprimarydiscoveryisthatthepower-lawexponent-n, isstatistically indistinguishabl$
$strange-hyperons.Thisuniversalbehaviorleadstoanimportantproperty: theratiosoftheaveragetransverseenergydensitie$
$nucleuscollisionsarepractically constant from RHIC to LHC.$
$We discuss this observed energy independence of ratios of transverse energies within the framework of the multipomeron excha$
$gluonstringtensionparameter(teff)ofthemodel.$
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