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Neutral meson production in pp and Pb-Pb collisions at LHC

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Identified hadron spectra are considered as a sensitive probe for transport properties of strongly interacting matter produced in heavy ion collisions. The ALICE detector at the LHC studies pi0 and eta meson production via their two-photon decays by two complementary methods, using electromagnetic calorimeters and the central tracking system for photons converted to e+e- pairs on the material of the inner ALICE detectors. Production spectra of pi0 and eta mesons were measured with ALICE in pp collisions at LHC energies at mid-rapidity in a wide transverse omentum range. The spectrum and the nuclear modification factor R_AA of the pi0 production measured in Pb-Pb collisions at different centralities, show a clear pattern of strong suppression in a hot QCD medium with respect to pp collisions. Azimuthal anisotropy v_2 of pi0 production measured with ALICE is consistent with v_2 for other hadron species. Comparison of the ALICE results on neutral mesons with the lower-energy experiments is discussed.

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