Production of the $\Lambda(1520)$ resonance in p+p and central Pb+Pb collisions at the CERN SPS.

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Abstract

Due to the short lifetime of the $\Lambda(1520)$ resonance a large fraction of the decays will occur inside the reaction zone. This can give rise to medium effects on the resonance itself and to rescattering of the decay products. The $\Lambda(1520)$ decays into K^-,p (22.5% branching fraction) and is observed in the invariant mass distribution of the identified p and K^- pairs.

In p+p collisions we find a total multiplicity of 0.012±0.002. A simple extrapolation to central Pb+Pb collisions by scaling with the number of participants would lead to a total multiplicity of about 2 which has to be doubled if the common strangeness enhancement is effective. The analysis of central Pb+Pb events yields a total multiplicity of 1.00±0.15 which indicates the suppression of the $\Lambda(1520)$ signal in the hot and dense nuclear fireball.

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