

EMC Effect in Heavy Ion Collision

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Recent data in heavy ion collisions show suppression at high transverse momenta, which might be identified as the EMC effect. The influence of nuclear parton distribution functions (nPDFs) on high- p_T hadron production in deuteron-gold dAu collisions at RHIC was investigated using a pQCD-improved parton model and several different parameterizations of nuclear PDFs, including the latest HKN and EPS09.

We study whether the EMC suppression of nuclear PDFs is responsible for the observed suppression of high- p_T π^0 and γ production in dAu collisions. We did a slope analysis. Theoretical uncertainties in the nuclear modification factor, R_{dAu} resulting from uncertainties in the PDF fits and from pQCD scale uncertainties are evaluated uniquely.

We have also checked, the possibility that final-state energy loss of jets could also contribute to the observed suppression is evaluated using a simplistic implementation of the GLV energy loss model.

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