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Excited State(2S) Charmonium Production from B-hadron Decay

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In comparison with J/ψ , the excited charmonium 2S-state ψ' is loosely bounded and its yield is dominantly from the B-hadron decay. Based on the transport approach, we study the double ratio of $N(\psi')/N(J/\psi)$ from A+A collisions to that from p+p collisions at LHC energy, where N means the yield.

We found that different from bound charmonium state J/ψ whose inclusive yield and averaged transverse momentum are dominated by charm pair recombination at LHC, both the primordial production in the initial stage and the charm pair regeneration in the hot medium are not significant for ψ' production in heavy ion collisions at LHC. And the double ratio in semi-central and central collisions is controlled by the B decay.

Author: Mr CHEN, Baoyi (Tsinghua University)

Co-authors: Mr ZHOU, Kai (Tsinghua University); Prof. ZHUANG, Pengfei (Tsinghua University); Dr LIU, Yunpeng (Tex A&M University)

Presenter: Mr CHEN, Baoyi (Tsinghua University)