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Charm contribution to final hadron yield at LHC

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Almost all charm in heavy ion collisions is produced in the hard ‘first interaction’ processes before partons thermalize into a drop of QGP. Charm survives the QGP evolution and as hadrons emerge in soft hadronization processes, practically every charm or anticharm quark turns into a charmed hadron, small fraction of the charm yield enters multi-charmed hadrons and charmonium states. We assume that in the hadronization process the single charmed hadrons production is governed by the available phase space and their yield is normalized by the total single charm hadron yield. By allowing for charm hadron to charm hadron decay cascades, we establish total fraction of single charm hadrons found in their ground states. We show that the yields of charmed mesons can help to determine the charm hadronization temperature. We further cascade single charmed hadrons into non-charmed hadrons and show that at LHC these cascade products add significant fraction to certain strange hadron yields. We discuss particularly interesting examples such as ϕ ($\bar{s}s$) and $\Xi(ssq)$. This shows that one cannot study charm and hadron production at LHC omitting the charm conversion into soft hadrons.

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