Characteristics of charmonium production in Pb—Pb collisions at $\sqrt{s_{\text{NN}}} = 5.02$ TeV measured with ALICE

Pascal Dillenseger

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Some time ago …

1974:
Discovery of the J/ψ
Sam Ting et al.
Burton Richter et al.

1986:
J/ψ suppression as signature of a QGP formation
Tetsuo Matsui & Helmut Satz

Quarkonium as QGP thermometer

J/ψ $R_{AA}$ from RHIC to LHC

- LHC data show **less** J/ψ suppression at $p_T < 8$ GeV/c than
  - RHIC data
  - expected from colour screening

$R_{AA} = \frac{Y_{AA}}{\langle T_{AA} \rangle \sigma_{pp}}$

$Y_{AA}$ - J/ψ yield

$T_{AA}$ - nuclear overlap function

ALI-DER-112313
So where do the $J/\psi$ come from?
A possible solution... (re)combination

Start of collision
Development of quark-gluon plasma
Hadronization

Low (RHIC) energy

High (LHC) energy


(Re)combination of c\bar{c}-quarks

Models containing a (re)combination component can explain the data

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Due to the uncertainties no discrimination power between the models
Extended $J/\psi$ observables

More discrimination power at the poster