

Review on recent results of J/ψ production at STAR

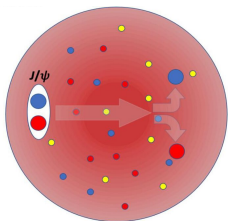
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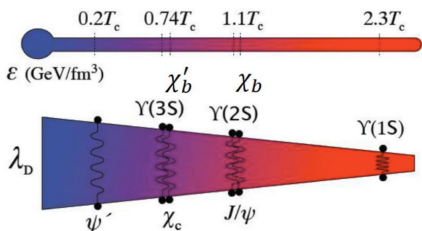
24th ZIMÁNYI SCHOOL
WINTER WORKSHOP
ON HEAVY ION PHYSICS
(December 2-6, 2024)



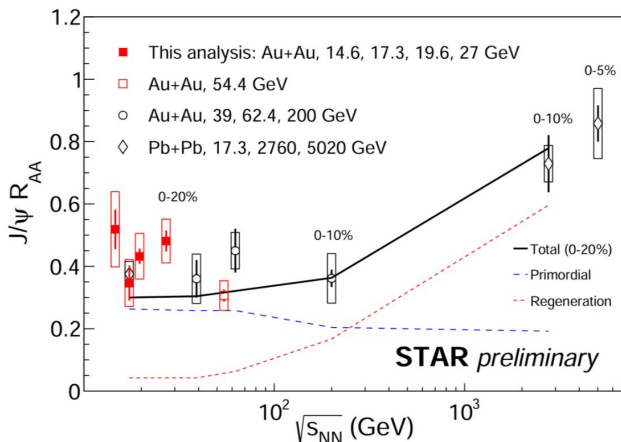
Recent results of J/ψ production in A+A



Credit: Q. Yang (STAR)

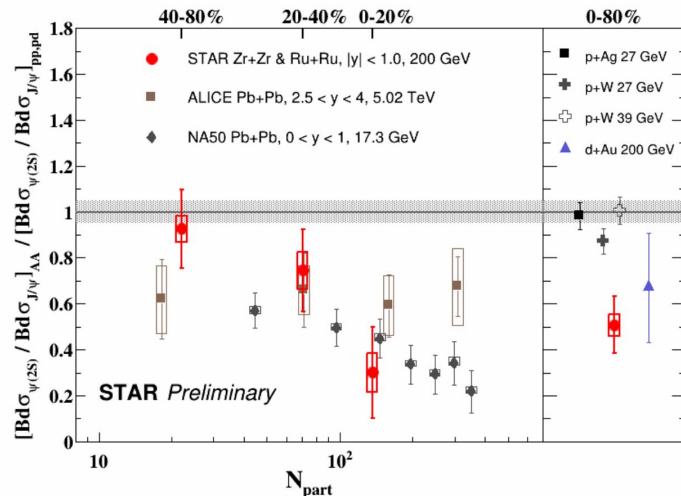


Inclusive J/ψ R_{AA}



No significant energy dependence
in central collisions within
 $\sqrt{s_{NN}} = 14.6 - 200$ GeV

$\psi(2S)$ over J/ψ Double Ratio



First observation of charmonium
sequential suppression in
heavy-ion collisions at STAR

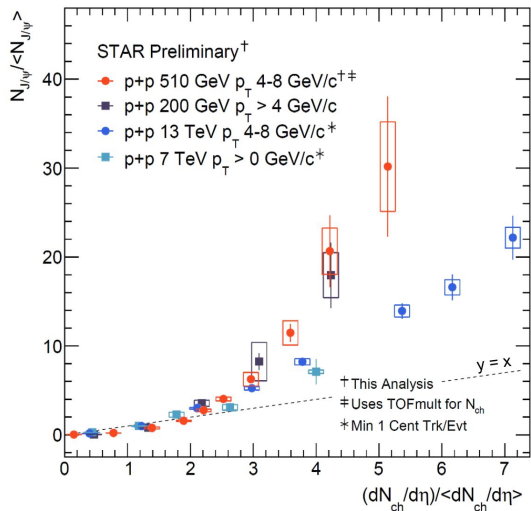
Outlook:

The high luminosity $p+p$ and Au+Au data at 200 GeV from 2023–2025 will enable more precise measurements of $\psi(2S)$ production



Recent results of J/ψ production in $p+p$

J/ψ Production vs Multiplicity in $p+p$

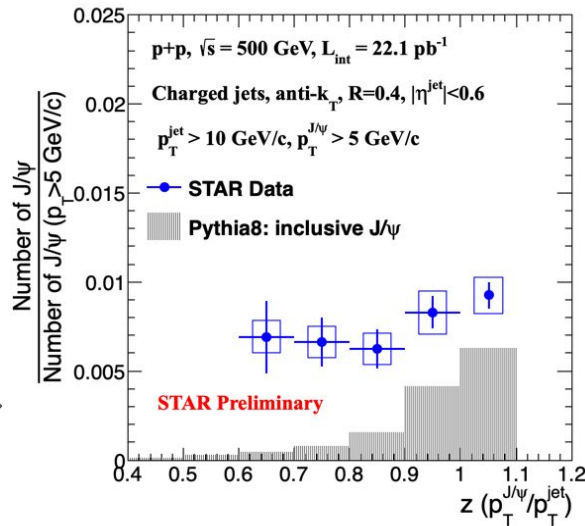


Sign of splitting between results at RHIC and LHC energies

The results show discrepancy with model predictions



J/ψ Production in Jets in $p+p$



Outlook:

Studies of J/ψ polarization in jets in $p+p$ collisions are ongoing and shall provide deeper insights into the J/ψ production mechanism

