SHINCHON

Simulation for Heavy IoN Collision with Heavy-quark and ONia

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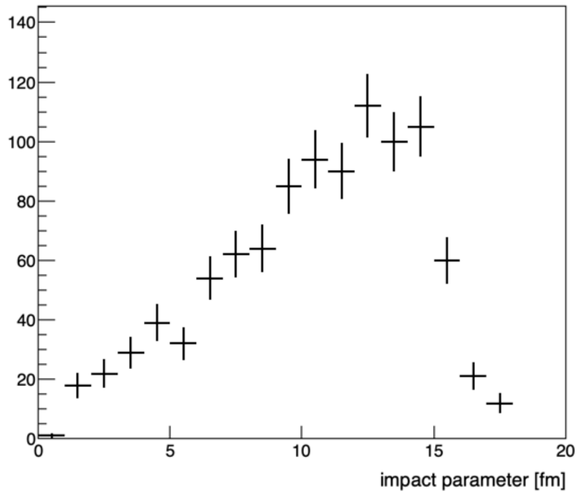
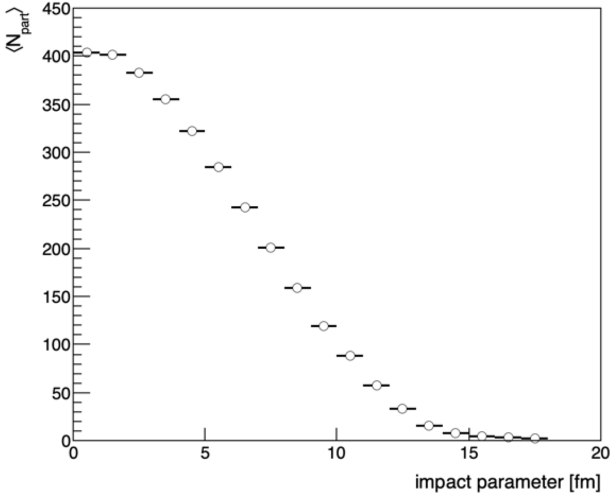
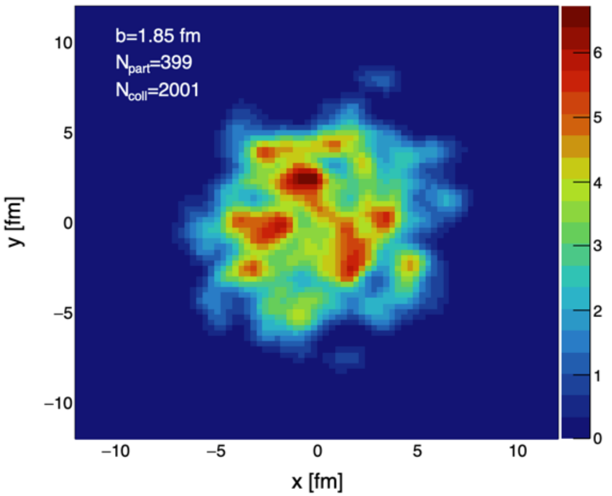
MC Glauber



Impact parameter distribution



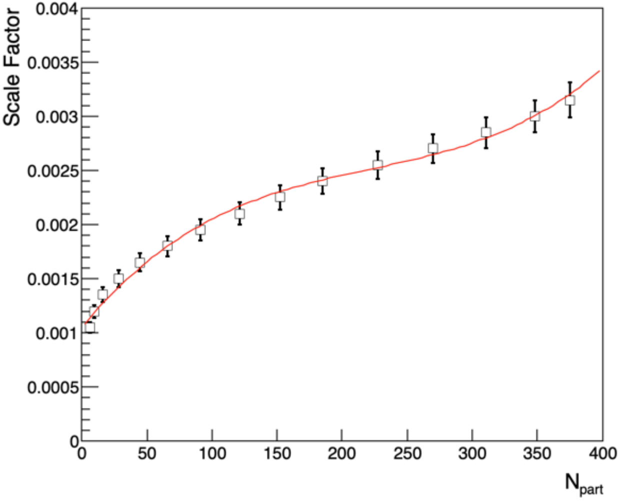
Number of participants vs b



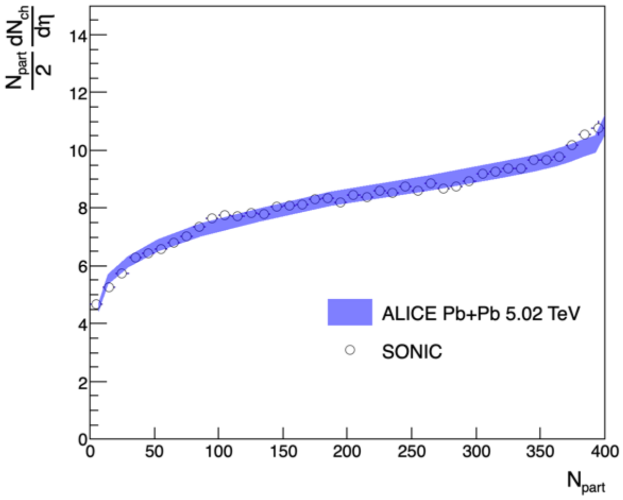
Example initial condition

- Initial condition for 1000 Pb+Pb events from MC-Glauber

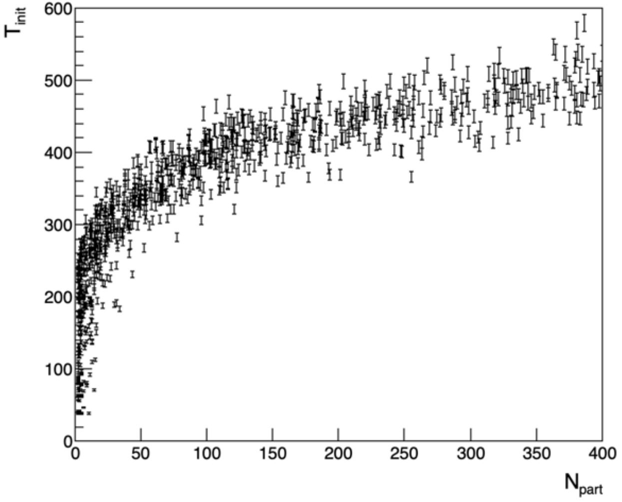
Hydro simulation



Scale factor for MC-Glauber



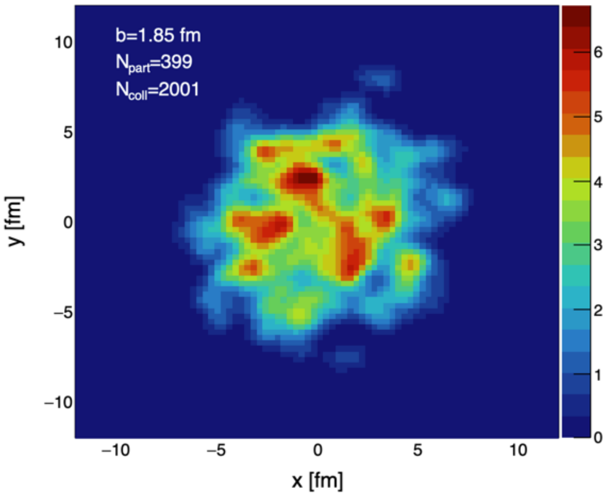
Charged particle multiplicity

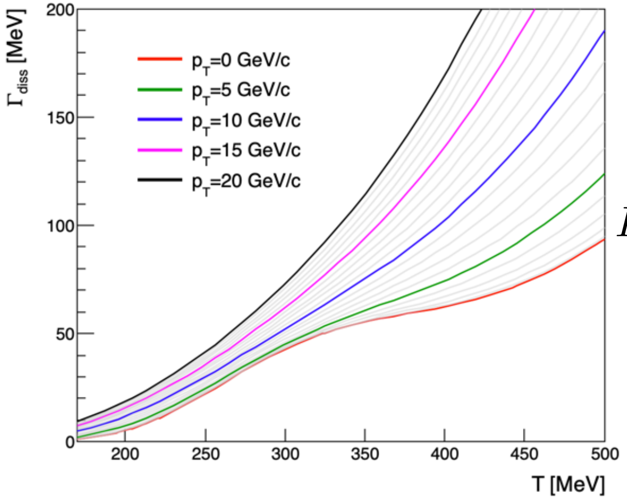


Initial temperature in hydro

- Convert MC-Glauber initial condition to energy density with scale factors as a function of N_{part}
- Scale factors are determined to match multiplicity at mid-rapidity

Medium response of Upsilon(1S)



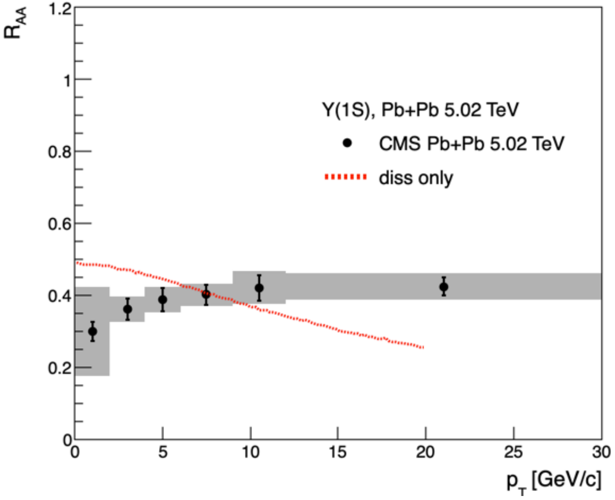


Thermal width

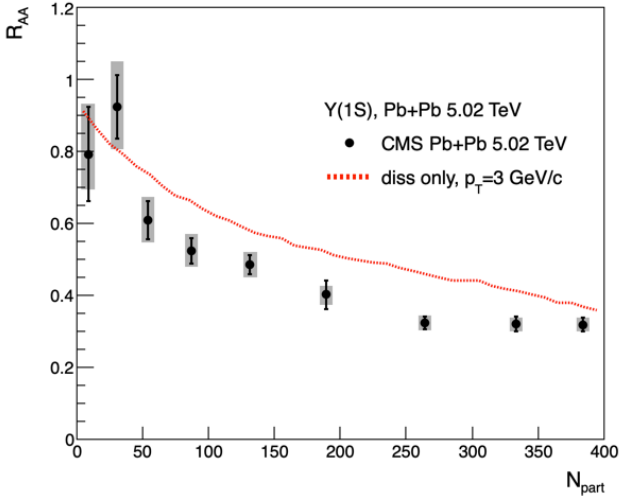
$$R_{AA}(t, p_T) = \frac{f_{\Upsilon}^{\text{diss}}(t, p_T)}{f_{\Upsilon}^{\text{diss}}(t_0, p_T)} = e^{-\int_{t_0}^{t} dt' \Gamma_{\text{diss}}^{\text{gluo+inel}}(t', p_T)}$$

- Generate Upsilons
  - X-Y position based on energy density in MC-Glauber initial condition
  - Uniform p_T (will be updated), random phi
- Medium response
  - Traverse the medium (temperature profiles in time) until staying at the freezeout temperature
  - Update the modification factor based on the temperature and momentum dependent thermal width

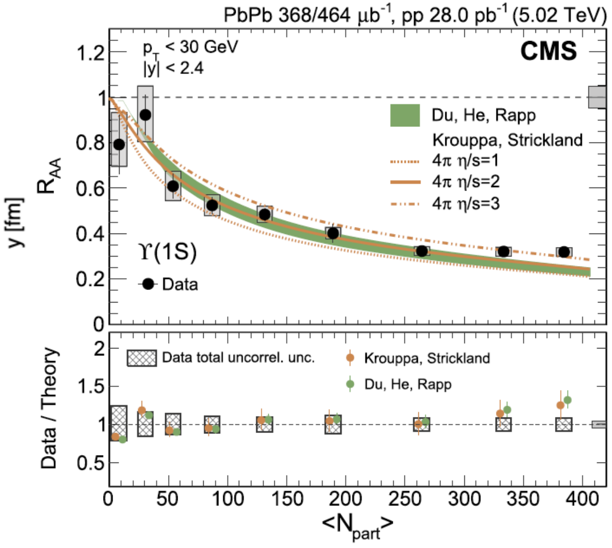
Upsilon(1S) modification



R_{AA} as a function of p_T in 0-100%

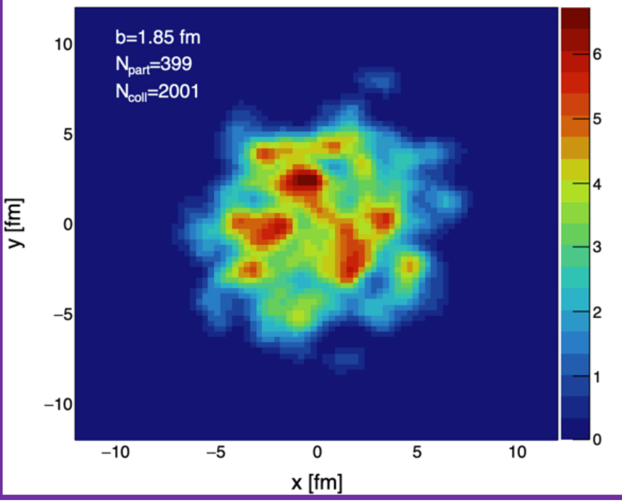


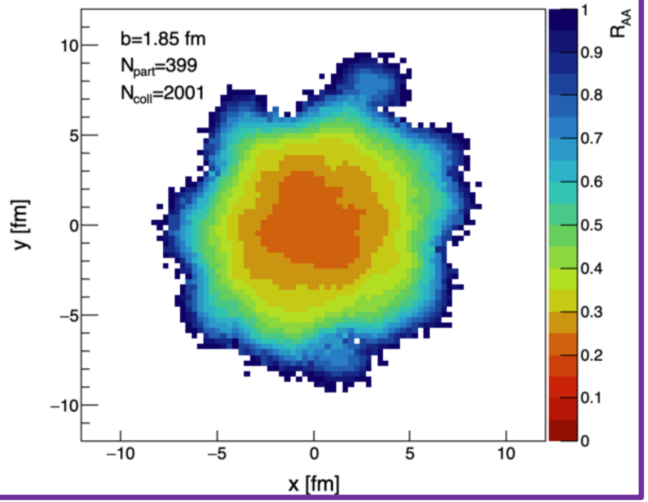
R_{AA} as a function of centrality

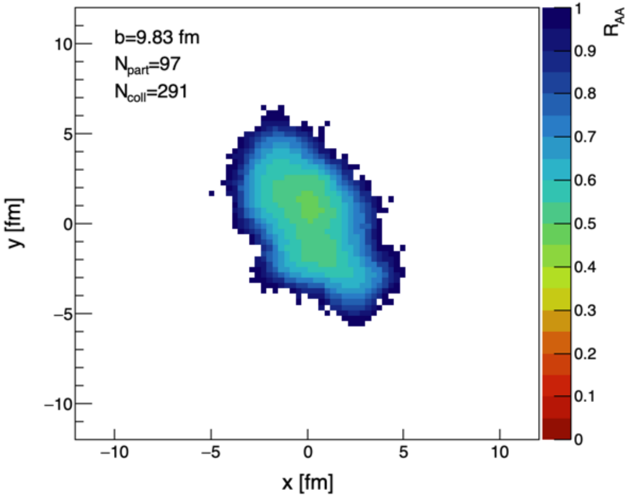


- Nuclear modification factor R_{AA} for Upsilon(1S)
  - Reasonable description of CMS data
  - No consideration of feed-down contribution

Upsilon(1S) modification







R_{AA} as a function of initial position

- Next step for KPS
  - v_2 calculation from initial geometry & disassociation?
  - Add the regeneration term