Why study open charm?

- curiously large suppression, large flow
- probe entire spacetime evolution
- test pQCD probe ↔ medium coupling!

Linearized Boltzmann Model: sample → scatter → free stream (repeat)

\[ C = c \rightarrow \phantom{\text{q}} + q \rightarrow g \rightarrow \phantom{\text{g}} \]

Fixed Temp. “Box Mode”

- infinite medium, fixed coupling
- vary initial charm energy
- \( \hat{e} = \left\langle \frac{1}{T} \sum_{n \text{coll}} \Delta E \right\rangle \)
- \( \hat{q} = \left\langle \frac{1}{T} \sum_{n \text{coll}} \Delta p_{\perp}^2 \right\rangle \)

E-by-E Viscous Hydro

\[ R_{AA} = \frac{dN_{AA}/dp_T^2/dy}{T_{AA} d\sigma_{pp}/dp_T^2/dy} \]
- recomb (x), frag. (√)
- cold nuclear matter effects (x)
- baseline: fragment w/o medium

Summary

- linearized Boltz. model in e-by-e viscous hydro
- fragmentation & after-burner
- infinite box and realistic medium modes
- calculated elastic charm transport coefficients and nuclear modification

Future Development

- multi-particle correlations
- radiative processes
- NNLO initial cond. transport model comparisons

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