



# MPI in AA — the PYTHIA perspective

LUND  
UNIVERSITY

Leif Lönnblad

Department of Astronomy  
and Theoretical Physics

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# The PYTHIA heavy ion framework

## Angantyr

- ▶ Extrapolating pp with **MPI**+ISR+FSR to pA and AA
- ▶ Glauber–Gribov-inspired nucleus structure

## Gleipnir

- ▶ String formation and Colour reconnection (**Swing**)
- ▶ String repulsion (**Shoving**)
- ▶ String fragmentation with overlapping strings (**Ropes**)

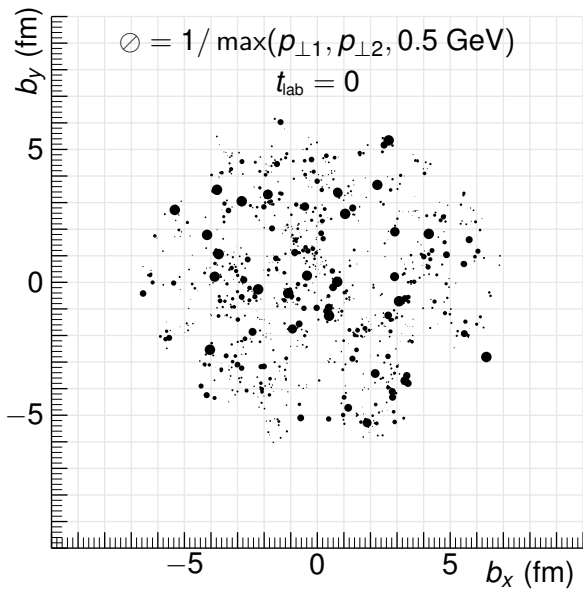
## Rescattering of hadrons

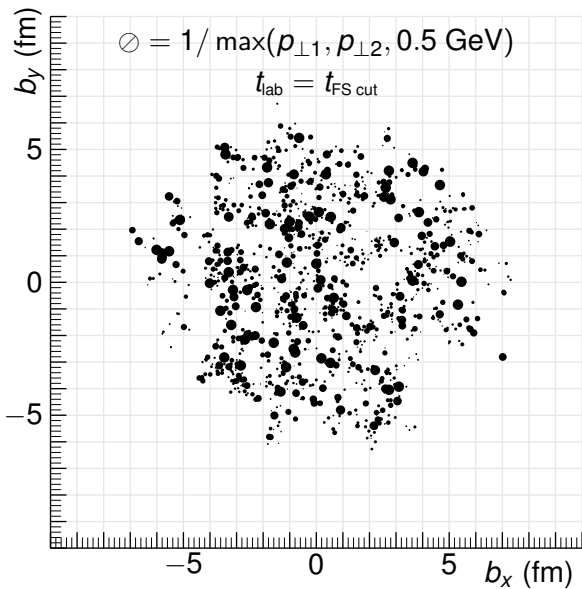


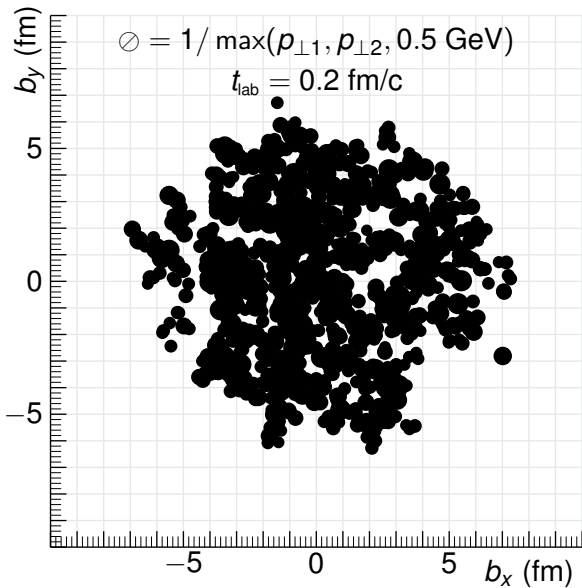
The important degrees of freedom are NOT quarks and gluons  
– it is the colour field between them (**Dipoles**)

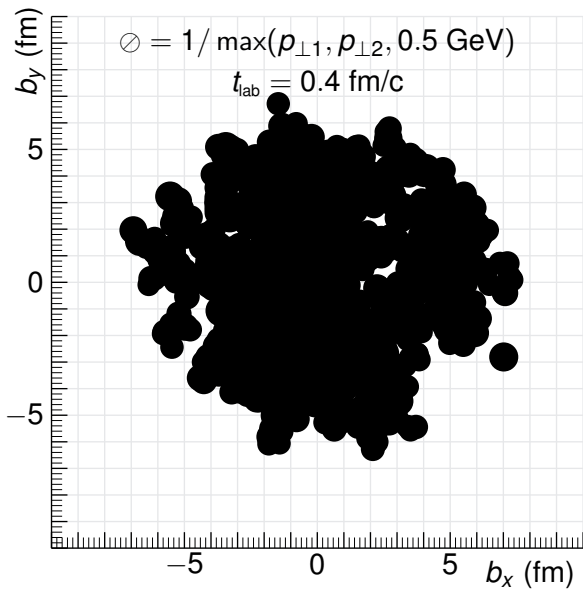
The initial partonic configuration in a central AA is NOT dense.

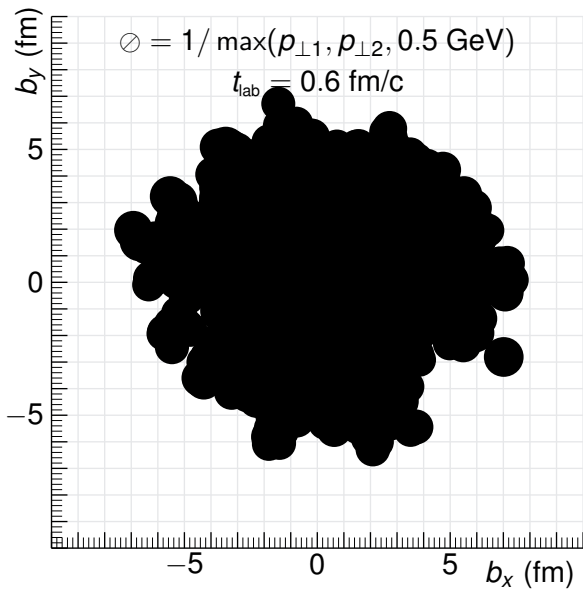




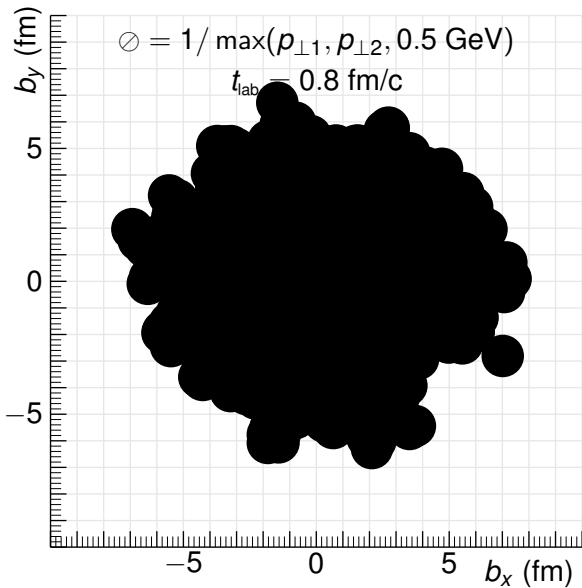




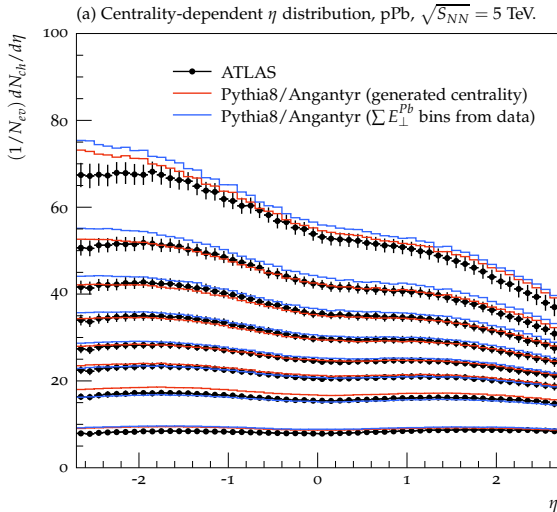








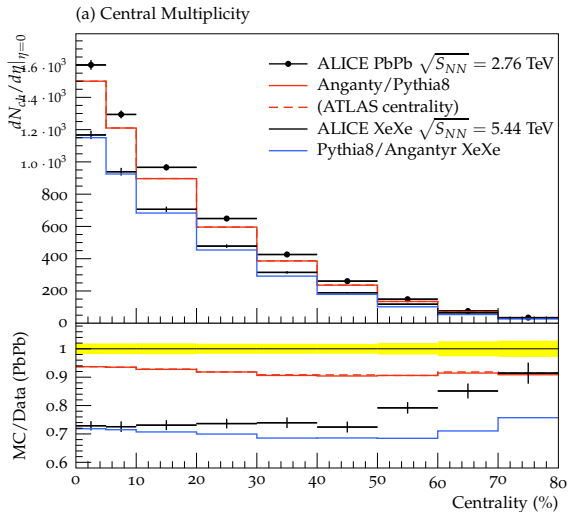
# Eta distribution in pPb



[arXiv:1508.00848]



# Central multiplicity in PbPb



# Gleipnir: String interactions in dense systems

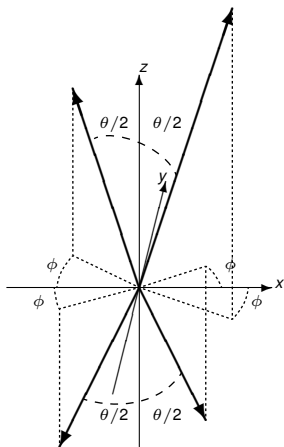
ALL partons are treated equal. It doesn't matter if they are in a jet or in the UE.

As a jet traverses the bulk

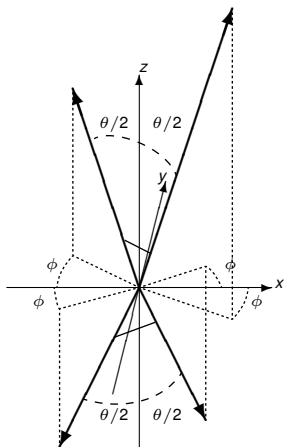
- ▶ its partons may colour reconnect with the “*the medium*”
- ▶ its partons may be shoved around by “*the medium*”
- ▶ its hard partons will hadronise outside the dense systems, but beware of  $z \rightarrow 1$ .



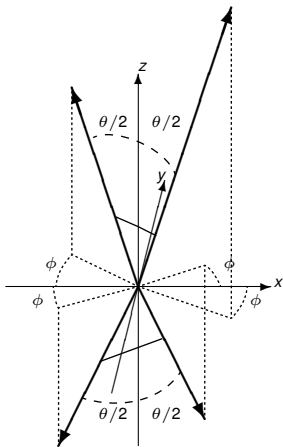
# The parallel frame



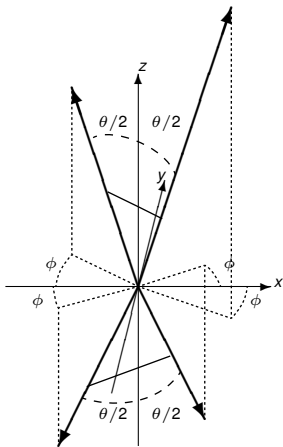
# The parallel frame



# The parallel frame

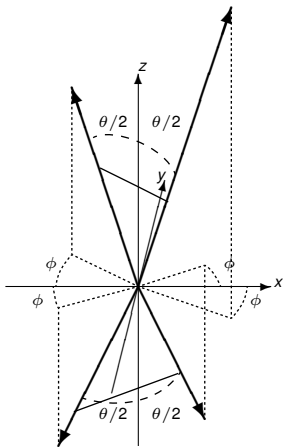


# The parallel frame

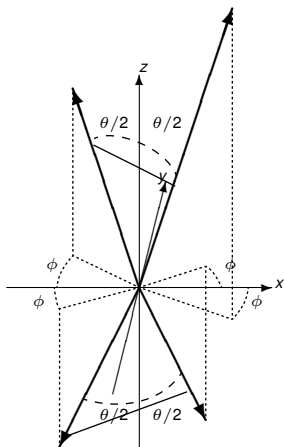




# The parallel frame



# The parallel frame



# Strings (MPI) vs. the conventional AA thinking

- ▶ MPI+strings similar to Glasma?
- ▶ Shoving similar to (2+1)D longitudinally invariant QGP?
- ▶ Ropes similar to strangeness enhancement in QGP?
- ▶ Swing similar to jet quenching?



