How many interactions does it take to modify a jet?
## And is that the whole story?

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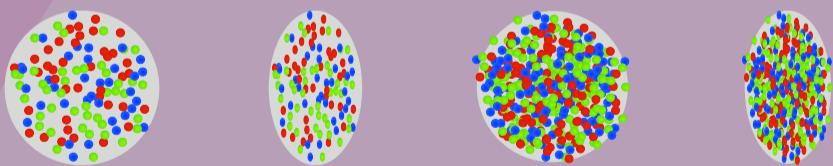[1]Lund University, Lund, Sweden;   [2]LIP, Lisboa, Portugal

What is going on in small systems?

- A medium of QCD particles is produced in heavy ion collisions
- Observables used to confirm and study this medium have also been seen in small systems (e.g., collectivity related observables)
- Jet quenching (the loss of energy from high jets traveling through a medium) has only been seen in large systems
- What is be happening in small systems such that jets are not significantly quenched but are still modified to the point that final state particle distributions show signs of collective behavior?
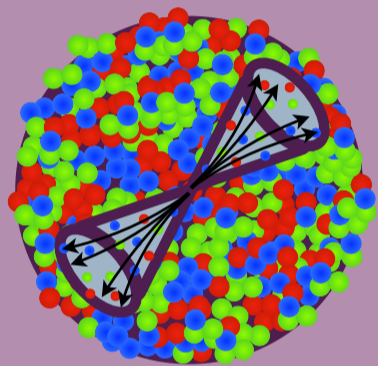
How are we trying to answer that?

- Use of the JEWEL code for the simulation of jet evolution inside a medium
- Find the number of jet-medium interactions that gives signs of jet quenching and v_2 (a common observable for collective effects)
- Control the number of jet-medium interactions without relying on models for the medium evolution or getting biased jet samples
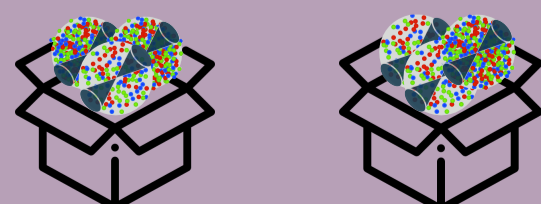- Brick-like medium with different densities and eccentricities
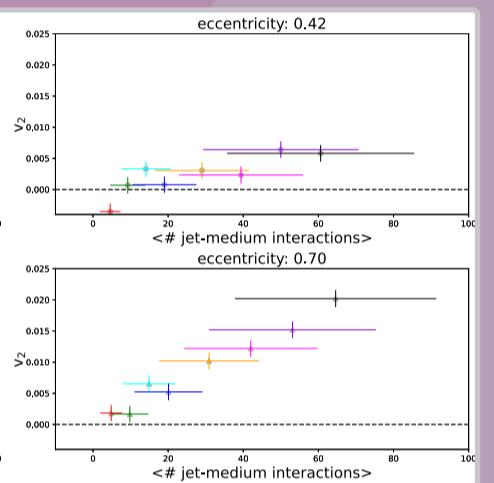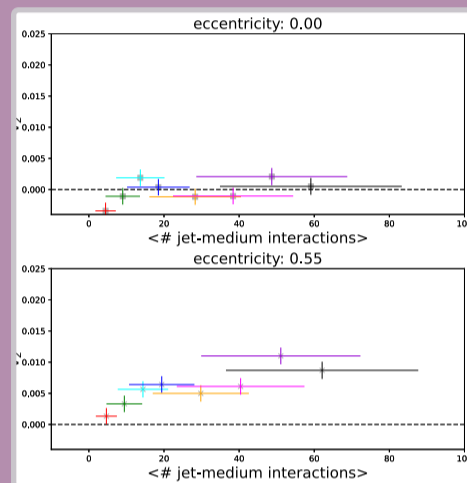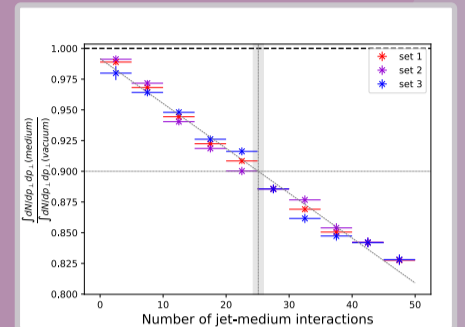- Jets evolve in the medium and R_{AA} and v_2 are computed in the different samples
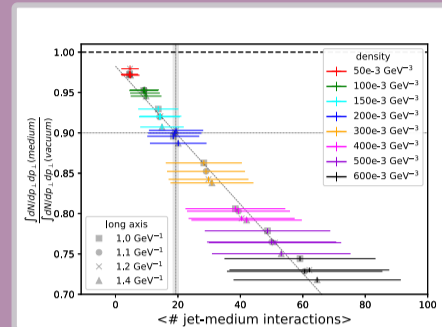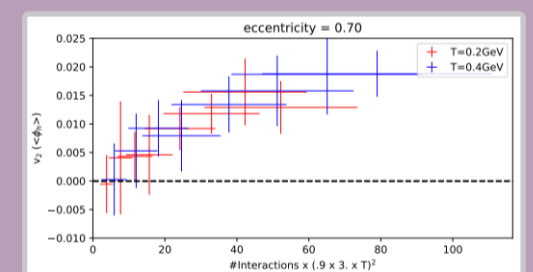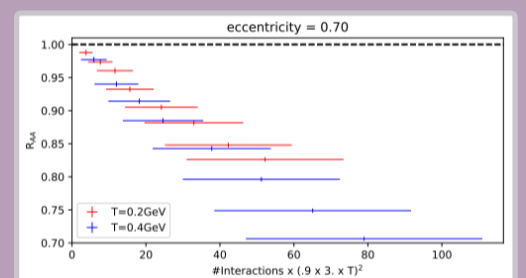
Grouping by density
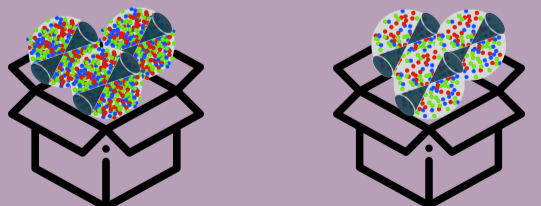
or number of interactions

What did we find out?

- Sizable R_{AA} seen at around 20 interactions
- v_2 may already be seen in certain systems before that
- Just the number of interactions does not tell the whole story
- Momentum transfer seems to matter most

What else can we do?

- Improved method to select in number of jet-medium interactions minimizing the selection bias
- Looking into how the scattering angle and the energy transferred at each interaction affect v_2 separately
- See how a more realistic medium mode can corroborate these results

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