

In-medium jet acoplanarity and intra-jet broadening in the QGP

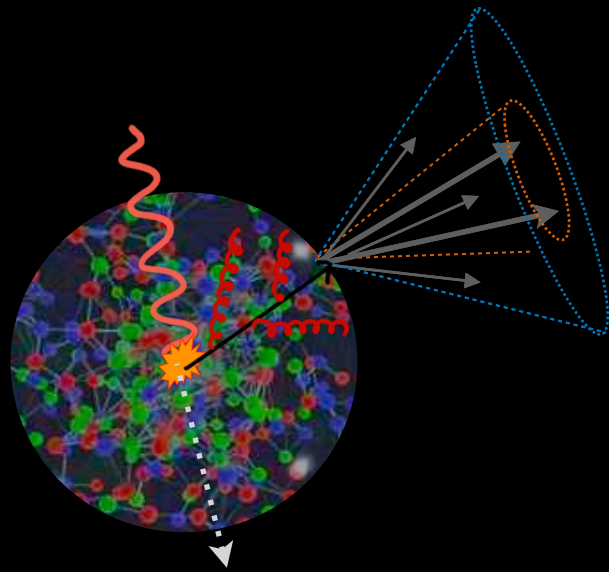
Nihar Ranjan Sahoo
Shandong University, Qingdao, China

2022 Town Hall Meeting on Hot & Cold QCD (23-25 Sep, 2022)

Physics mechanisms for acoplanarity of γ +jet in heavy-ion collisions

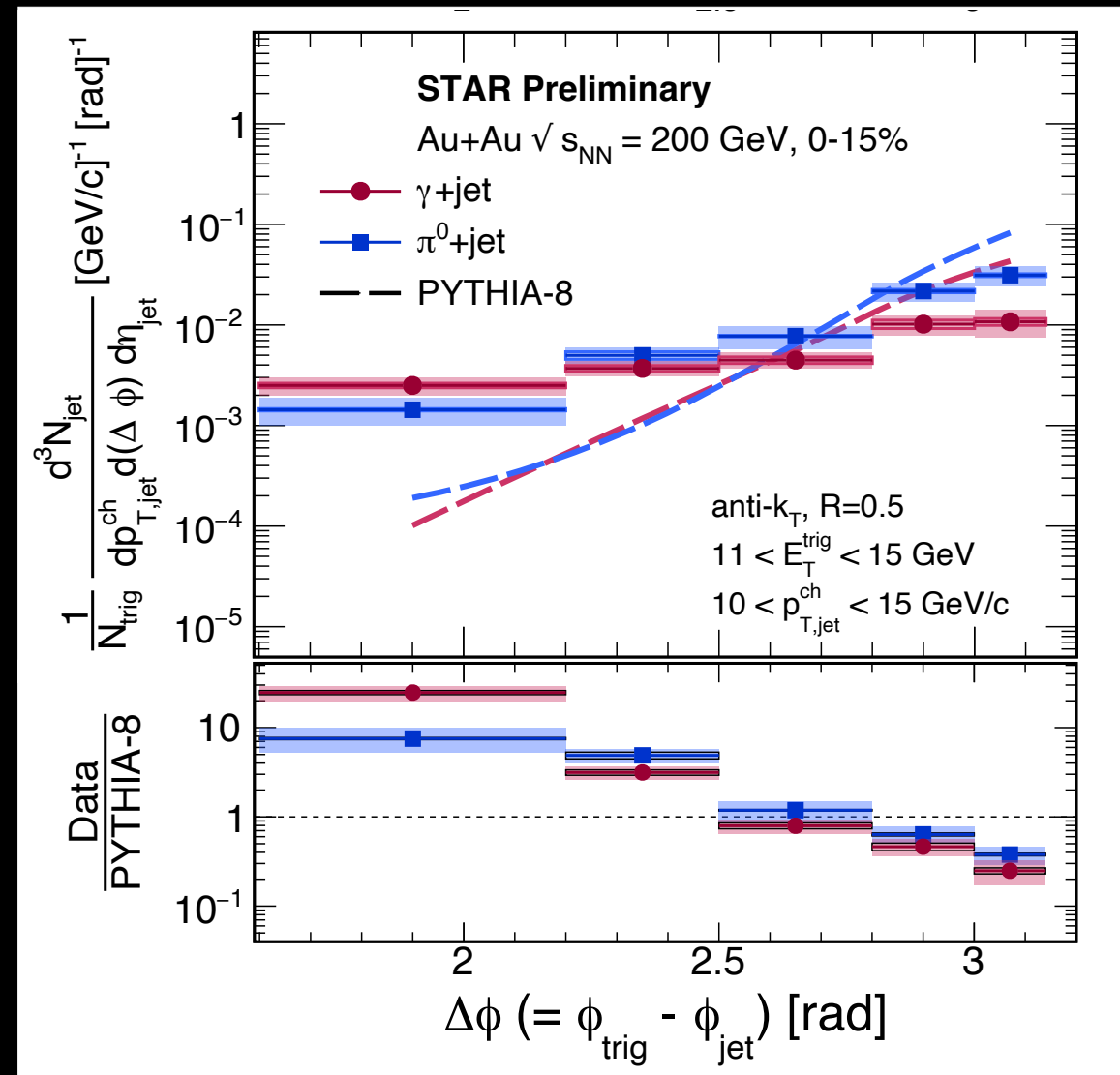
- Rutherford Scattering: Energetic parton resolves microstructure of QGP

D'Eramo, Rajagopal, Yin, JHEP 01 (2019) 172;
D'Eramo, et. All, JHEP 05 (2013) 031



- Vacuum soft gluon radiation
- Medium effect: multiple scattering and medium induced gluon radiation

A. Mueller et al, PLB 763 (2016) 208

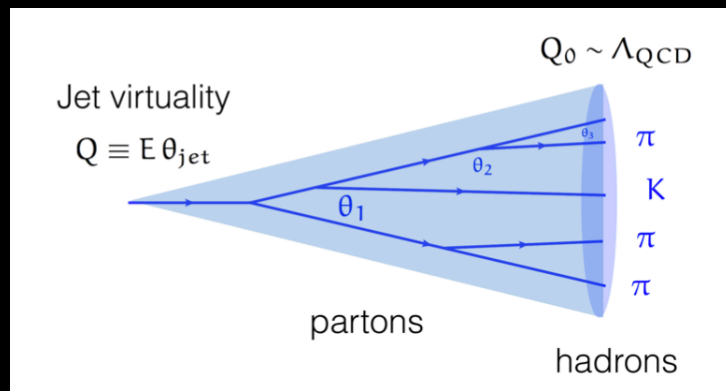


First evidence of significant medium-induced jet acoplanarity in QGP for jets with $R=0.5$

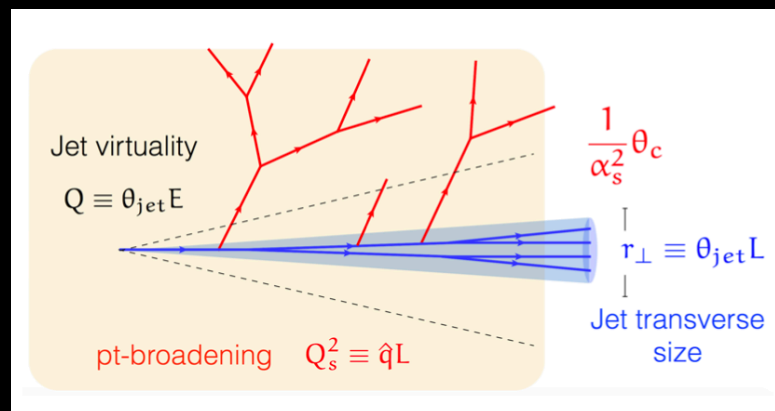
In STAR, Run23-25 high statistics data will be explored for precision measurements with extended kinematic coverage

R-dependence of jet yield: jet shape modification in QGP

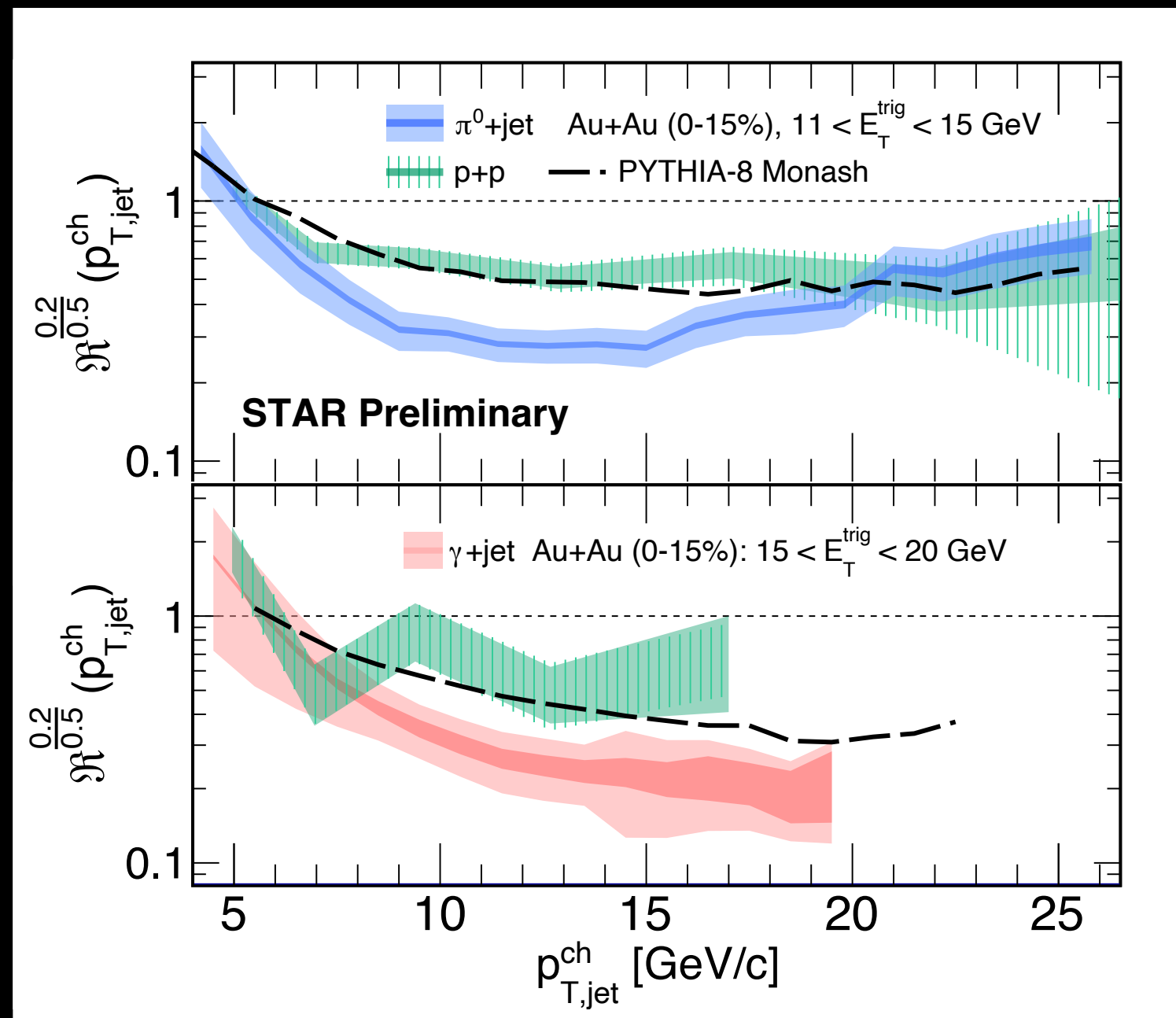
Vacuum parton shower



Medium-induced gluon radiation



Yacine Mehtar-Tani, arXiv: 1602.01047



Intra-jet broadening due to medium induced gluon radiations at RHIC