



ALICE

A JOURNEY OF DISCOVERY

Jet-Hadron Azimuthal Correlation Measurements in pp and Pb-Pb Collisions at LHC-ALICE

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Outline

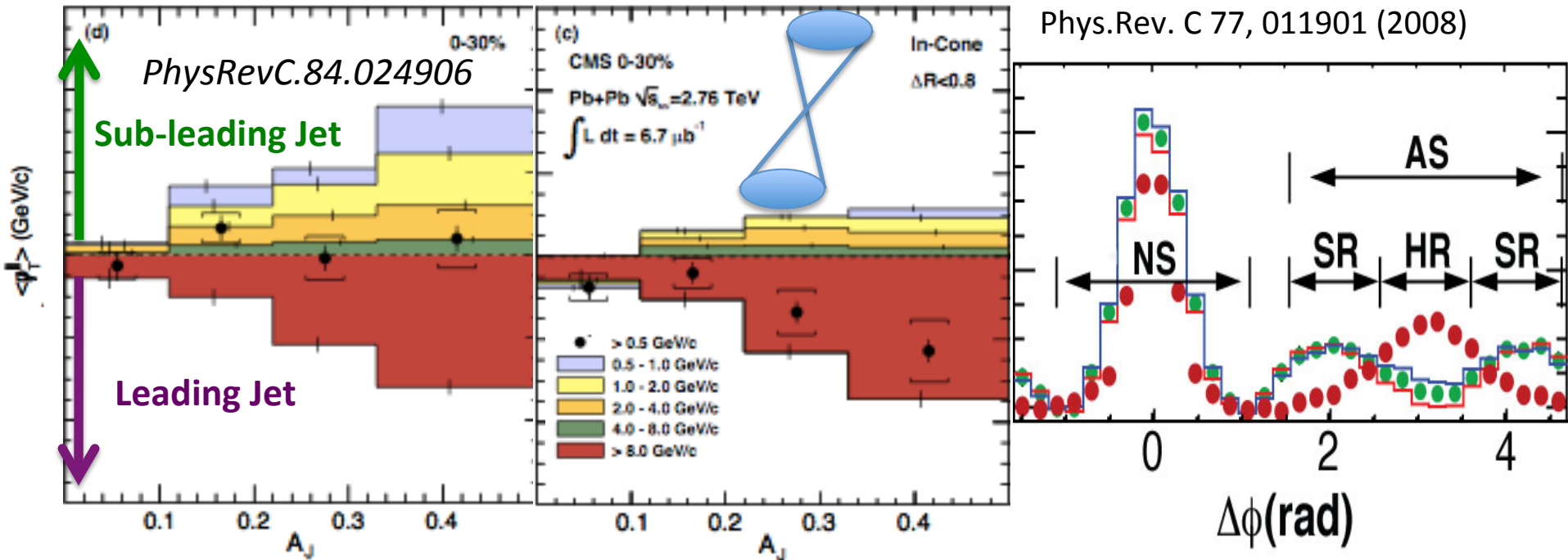


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- Introduction
- Event Information
- Leading-Jet Reconstruction
- Momentum distribution w.r.t Jet axis in pp
- Background Subtraction
- Momentum distribution w.r.t Jet axis in PbPb
- Summary and Outlook

Why “Jet-Hadron Correlation”?



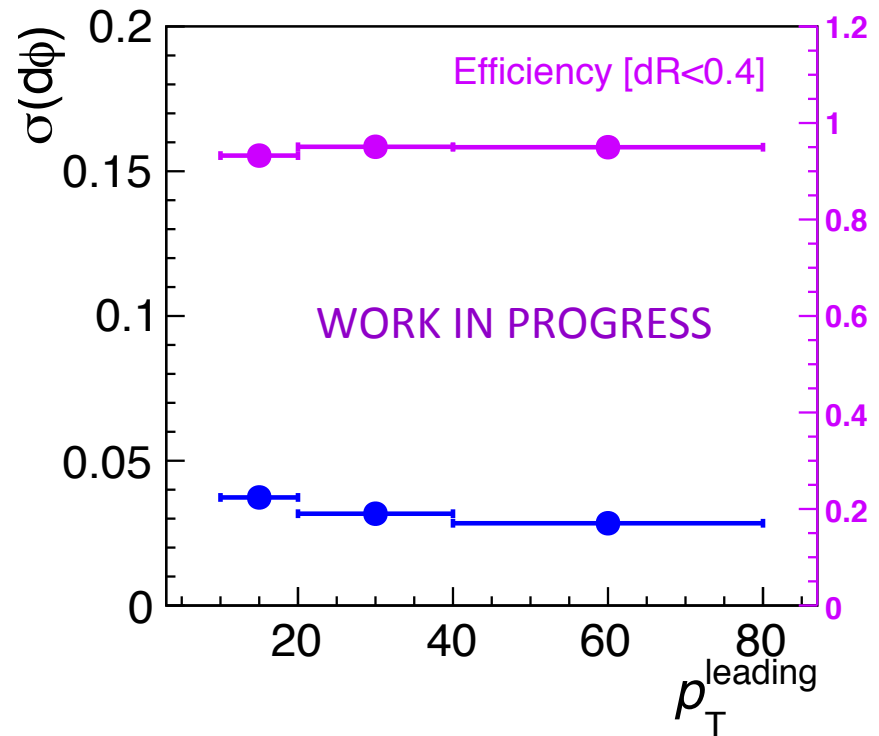
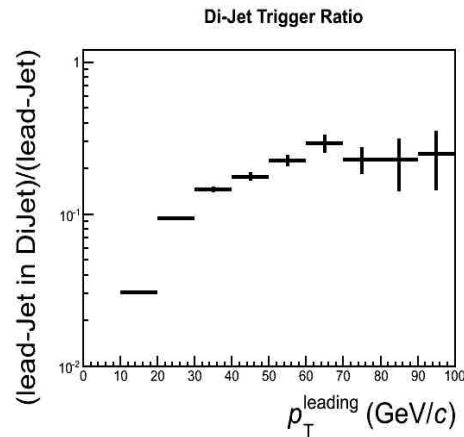
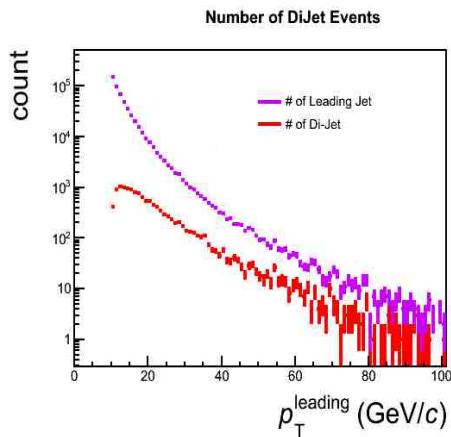
- Jet-energy flow into medium.
- Make sure origin of double peak in away side.
 - v_3 ? , “Mach Cone”?
- Jet-hadron correlation let us know constituent particles, shape ,BKG.

Event Selection

- Data : pp 2.76TeV (61M MB events) , 7TeV (31M MB events)
 Pb-Pb 2.76TeV (370K MB events)
- Tracks : TPC+ITS , $|\eta| < 0.9$, $p_{\text{T}}^{\text{track}} > 0.15 \text{ GeV}/c$
- Jets : anti- k_{T} R=0.4 , $|\eta| < 0.5$
- Di-Jet Event Selection
 - Leading Jet : $p_{\text{T}}^{\text{lead}} > 10 \text{ GeV}/c$
 - Sub-Leading Jet : $p_{\text{T}}^{\text{sub}} > 10 \text{ GeV}/c$
 - $\cos(\phi^{\text{lead}} - \phi^{\text{sub}}) < -1/2$ (120deg.< $d\phi$ <240deg.)

Leading-Jet Reconstruction

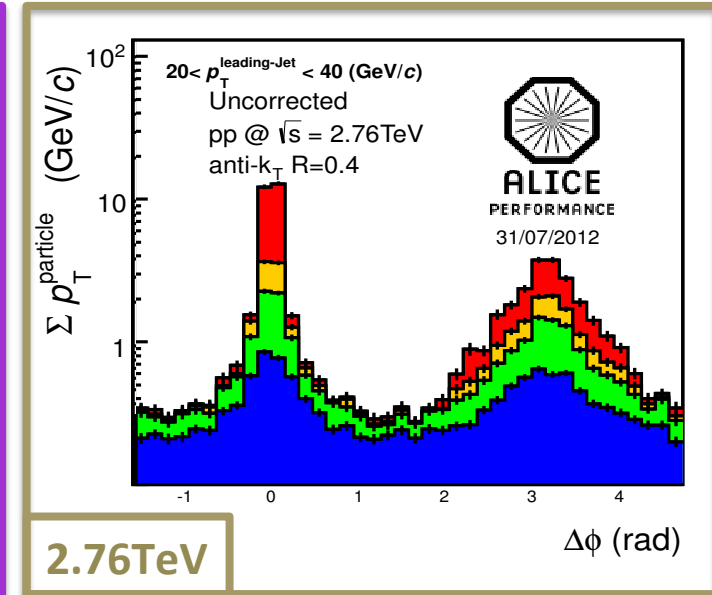
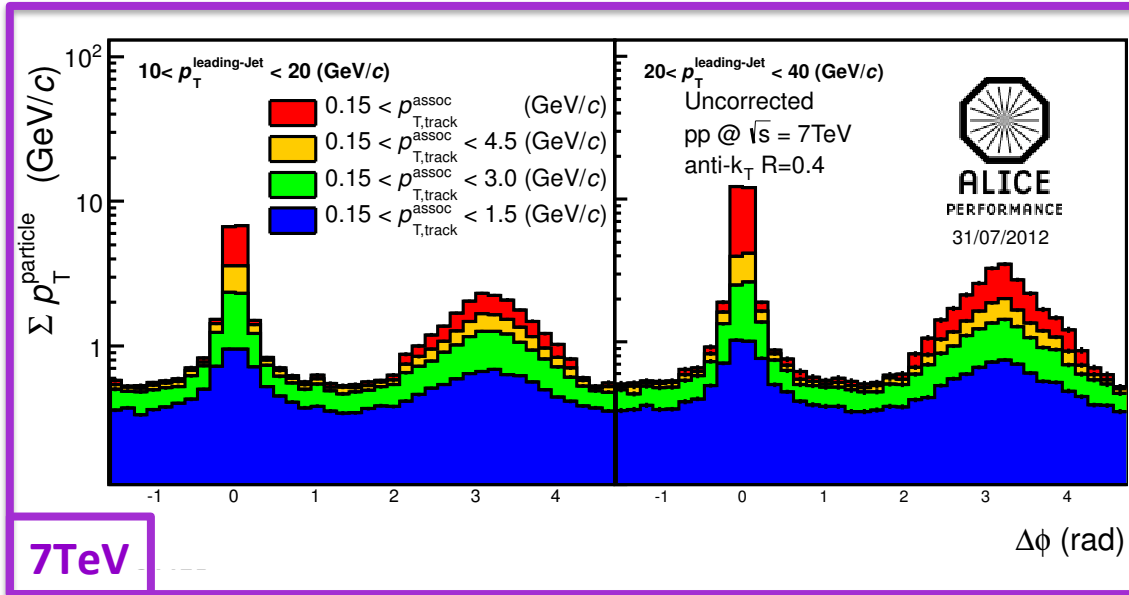
Data: pp 7TeV



Reconstructed di-Jet events
7TeV : 13k events
2.76TeV : 10k events

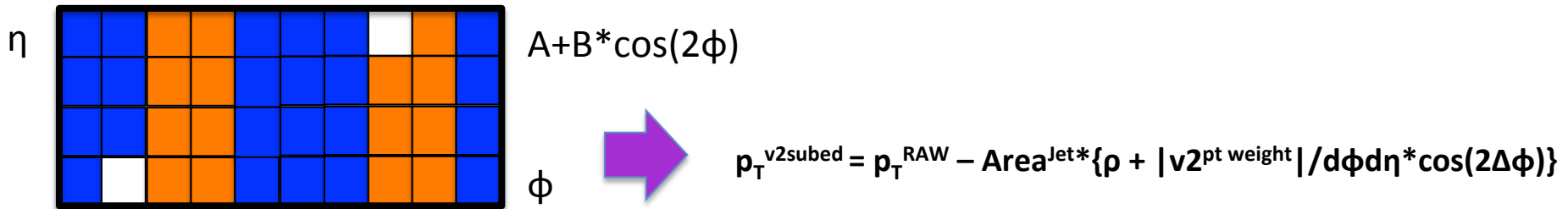
□ Within the acceptance,
almost leading jets are reconstructed as leading jets.

Momentum Distribution w.r.t Jet Axis



- Peak width and height depend on trigger jet momentum.
- Underlying momentum depend on center mass energy.

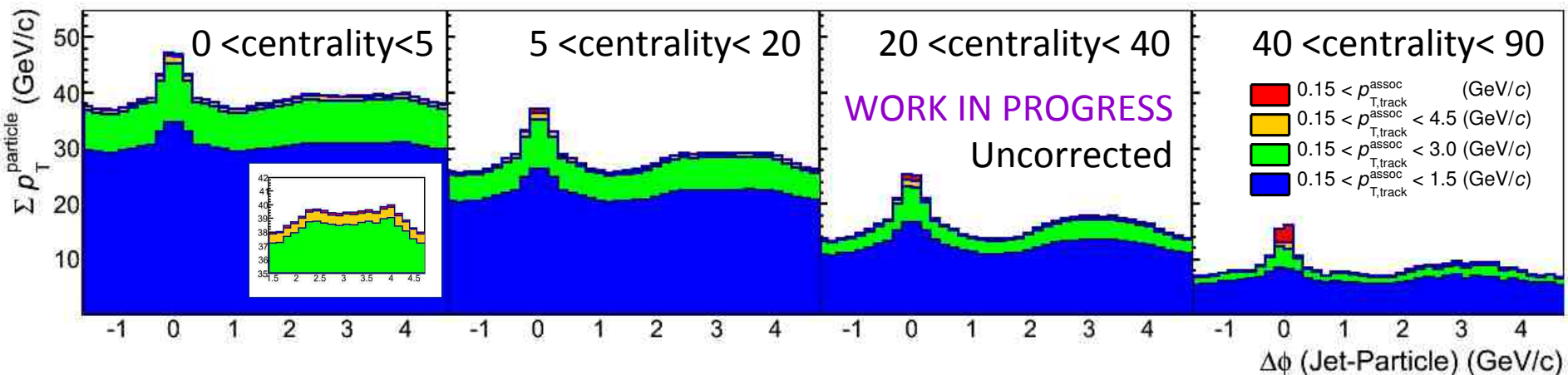
Background Subtraction in Pb-Pb



- ❑ Fill particles with their momentum into 2D histogram.
- ❑ Remove cells which are close to jet axis.
- ❑ Estimate flat momentum density and momentum weighted v_2 density fitting histogram.
- ❑ Subtract momentum from jets momentum.

Momentum Distribution w.r.t Jet Axis

$20 < p_T^{\text{leading}} < 40 \text{ GeV}/c$



- Underlying momentum depend on centrality
- Near-side jets are shaper with the increasing centrality.
- Double peak in away side on central.

Summary & Outlook

□ Jet-Particle Correlation in pp

- Peak and width depending on triggered jet momentum.
- Underlying momentum depend on center mass energy.

□ Jet-Particle Correlation in Pb-Pb

- Underlying momentum depending on centrality
- Near-side jets are shaper with the increasing centrality.
- Double peak in away side on central.

□ Outlook

- Subtract v_2 and v_3 effect from associate particles.
- Event Plane dependence, Compare with pp results.