Hard - Soft Interplay at RHIC

relation between v_2 and jet-modification

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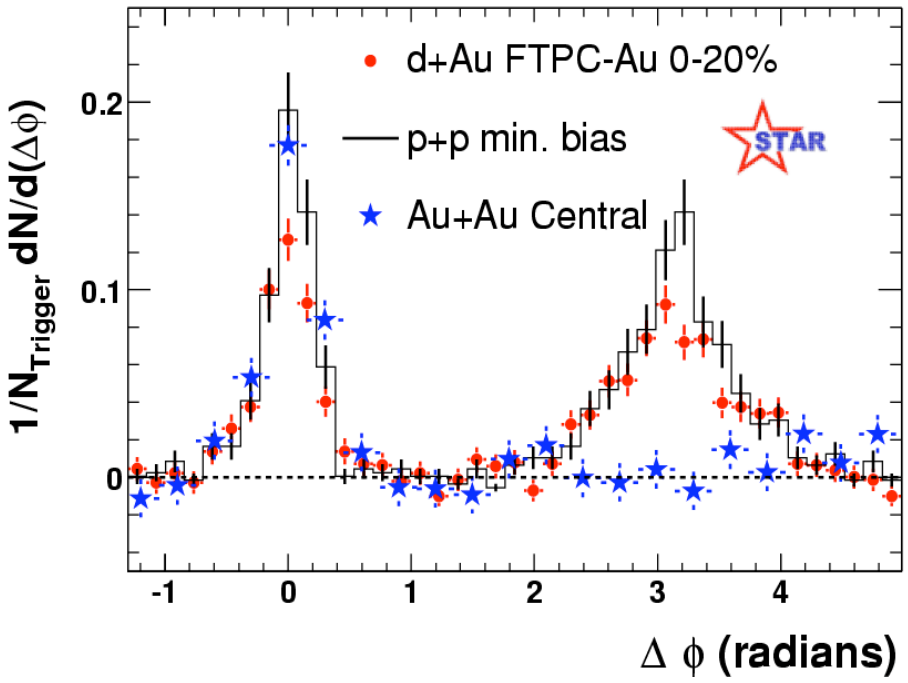
to replace the following talk

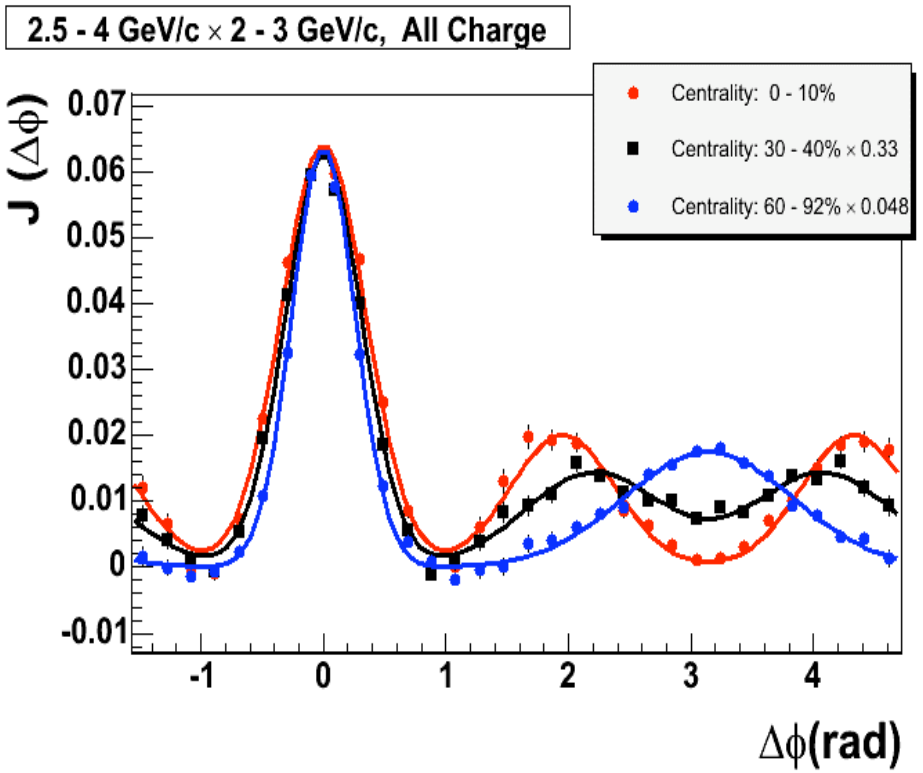
--- Bridging the soft and the hard at RHIC ---
Jiangyong Jia

Two particle $\Delta\phi$ correlation measurements

away side suppression
at relatively high p_T

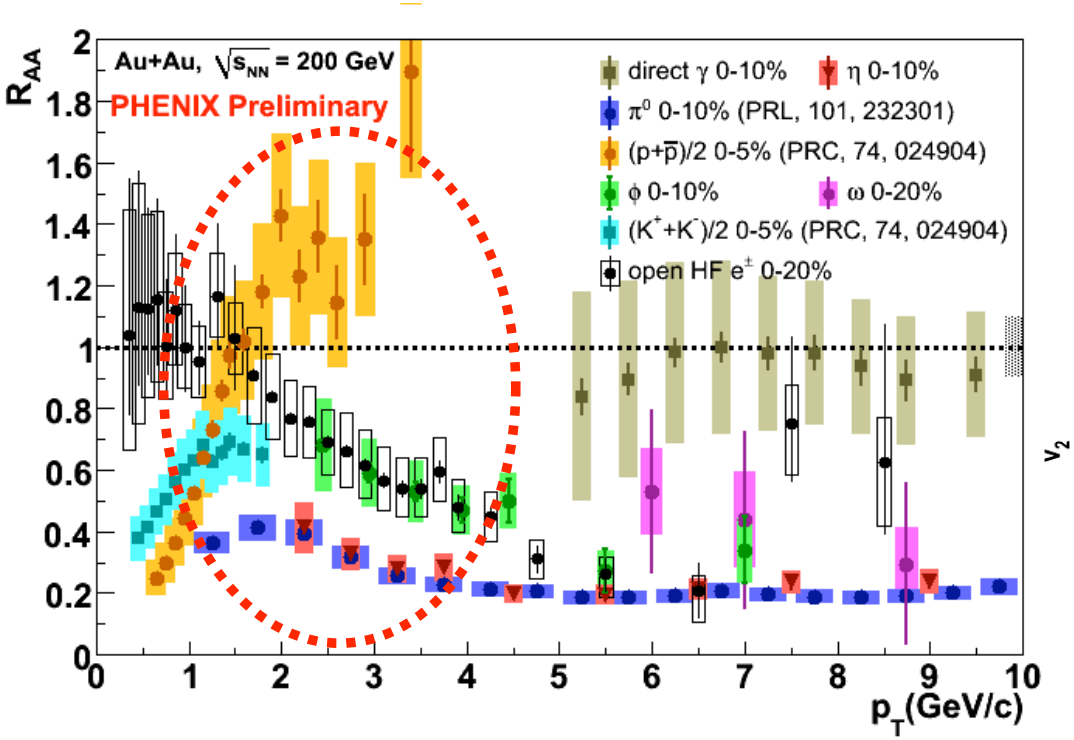


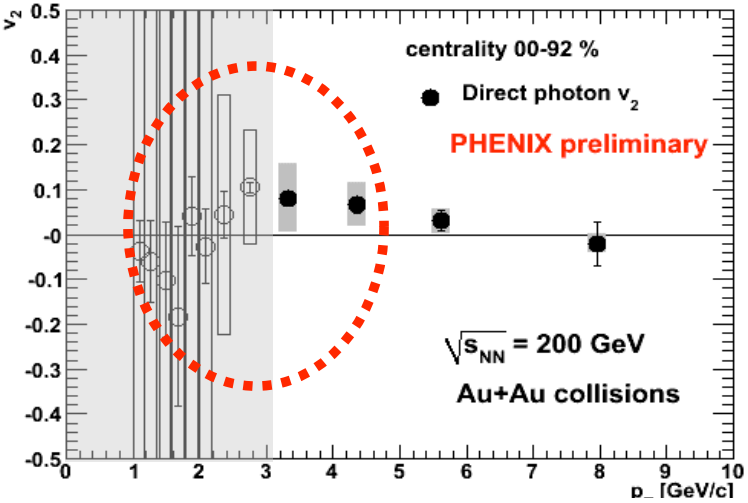
away side modification
at relatively low-middle p_T

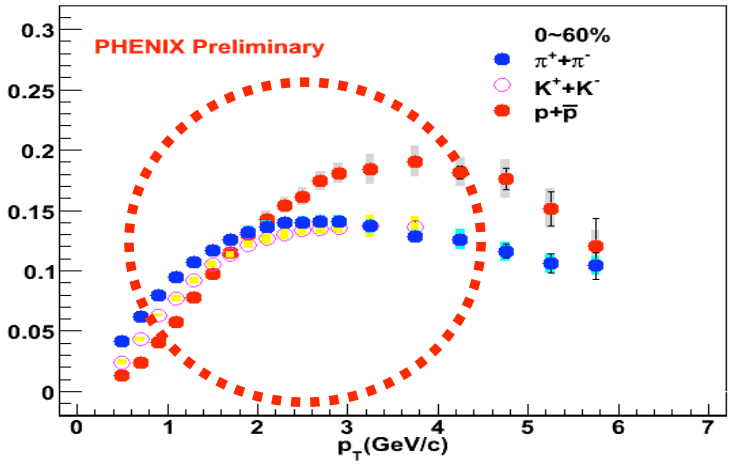


Single particle R_{AA} and v_2 measurements

various things are changing
at low-middle pT region.



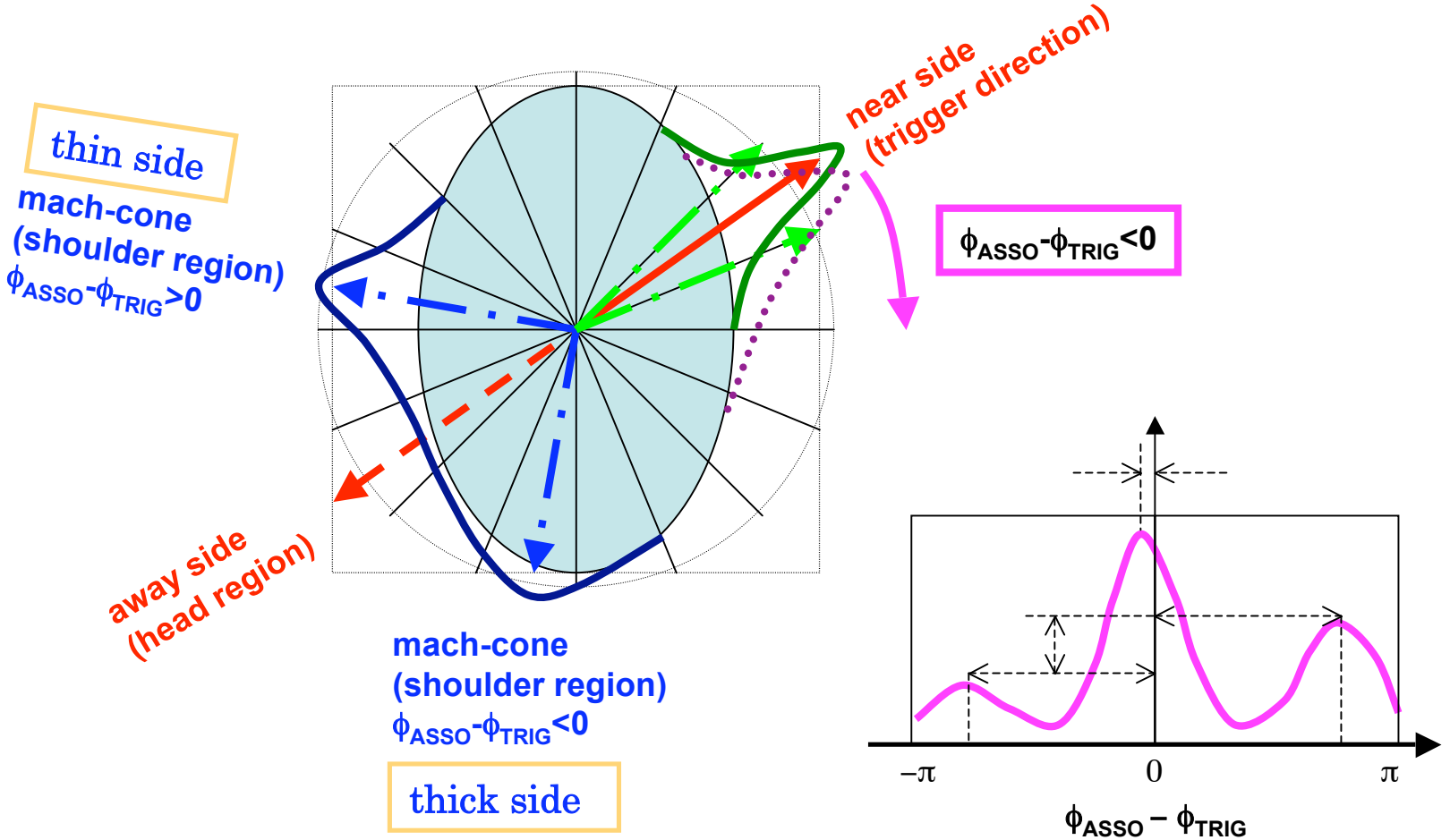


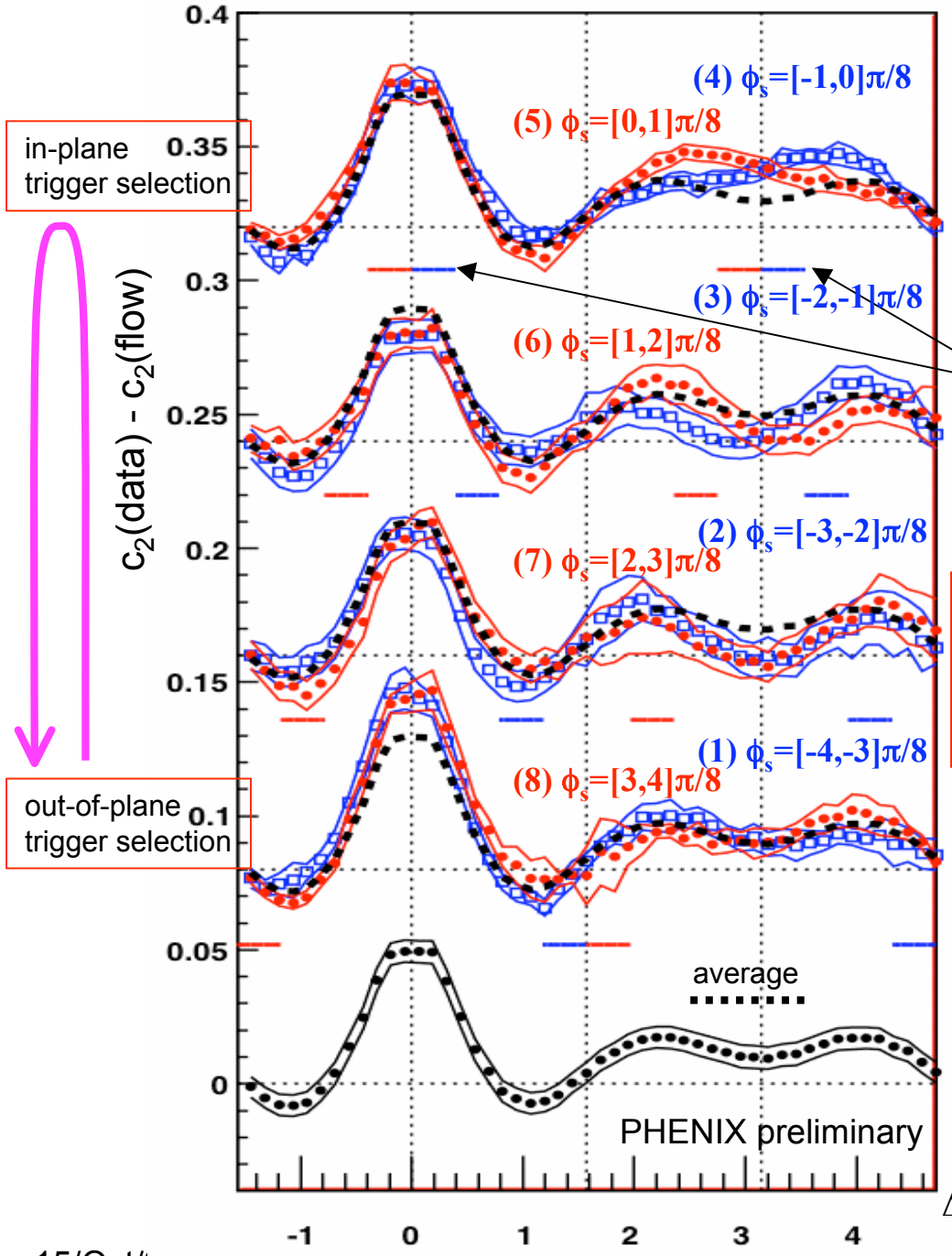


(1) geometrical (almond shaped) effect

or

(2) dynamical (elliptic expansion) effect



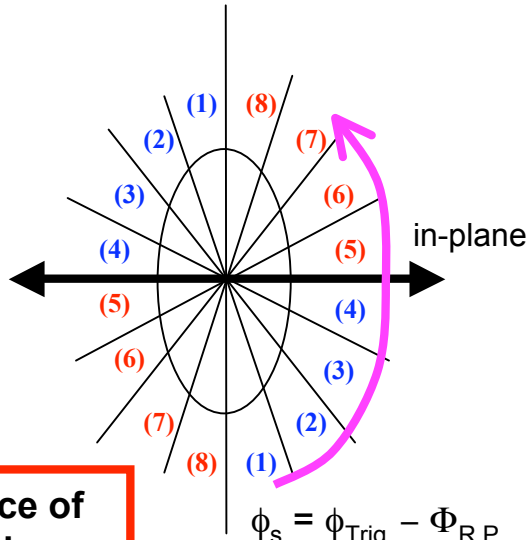


200GeV Au+Au -> h-h (run7)

(p_T^{Trig}=2~4GeV/c, p_T^{Asso}=1~2GeV/c)

mid-central : 20-50%

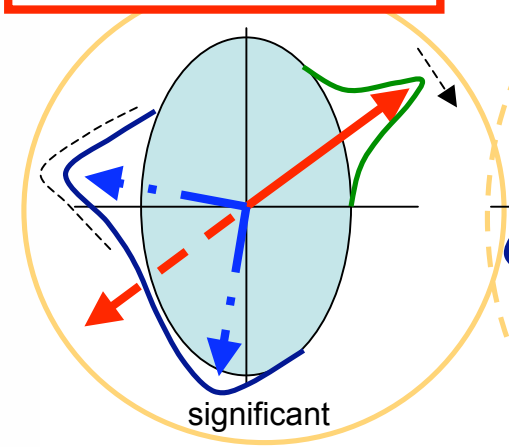
in-plane associate regions

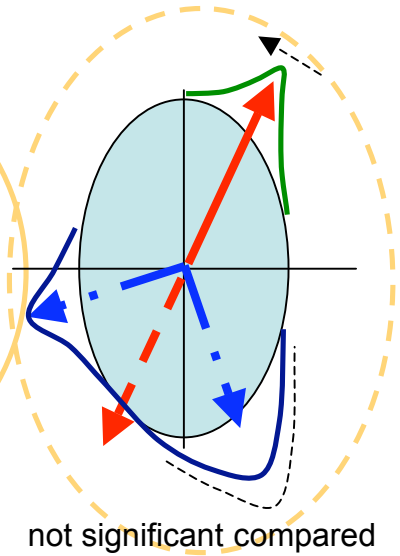


$\phi_s = \phi_{Trig.} - \Phi_{R.P.}$

$[-\pi/2,\pi/2]$

strong preference of associate particle emission towards the in-plane direction

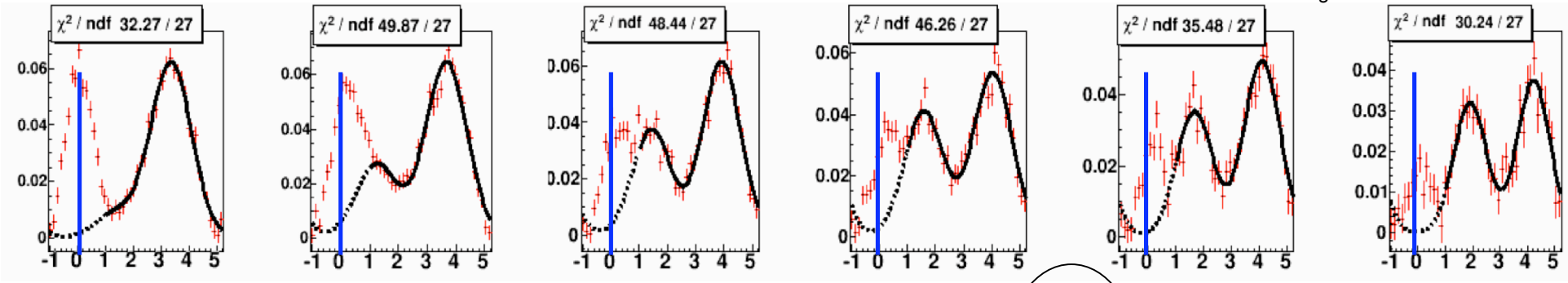




not significant compared with systematic errors

QM09 STAR

200GeV Au+Au 20-60% (p_T^{Trig}=3~4GeV/c, p_T^{Asso}=1~1.5GeV/c, $|\Delta\eta|$>0.7, ϕ_{Trig}-$\Phi_{R.P.}$<0)

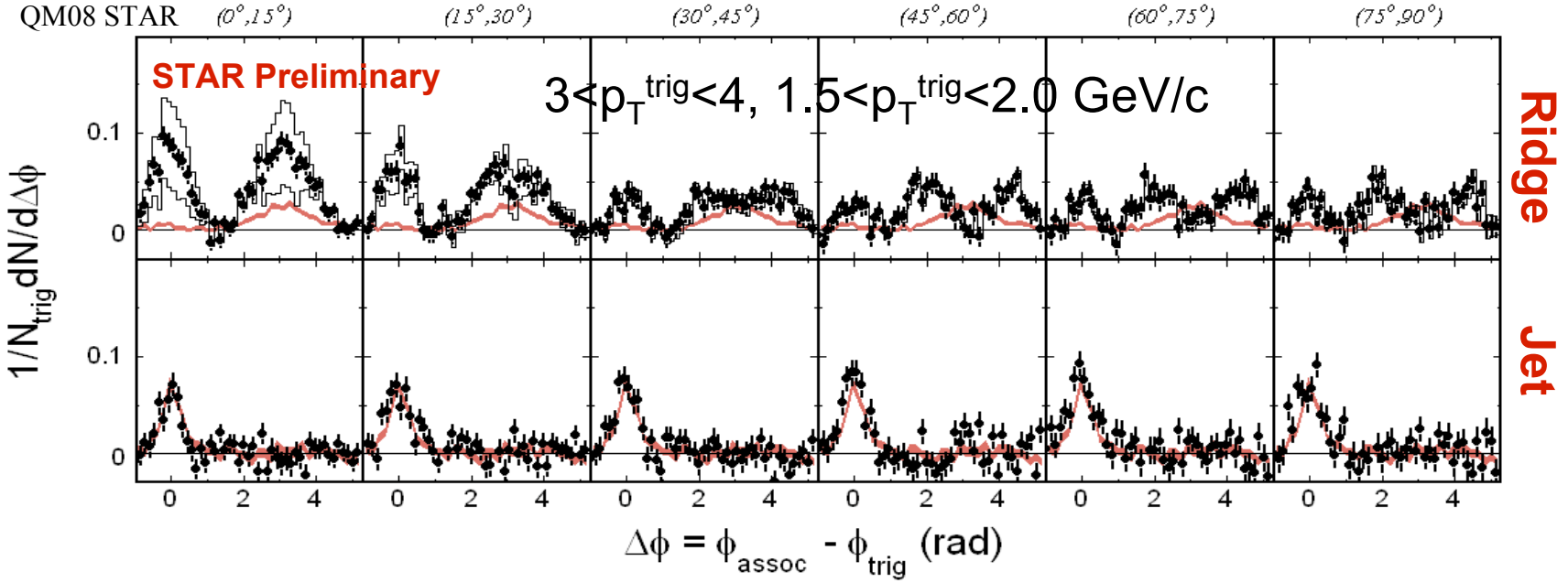


in-plane trigger selection

out-of-plane trigger selection

strong preference of associate particle emission towards the in-plane direction

QM08 STAR



Toy model simulation with flow
+ jet (strong R.P. dependence)

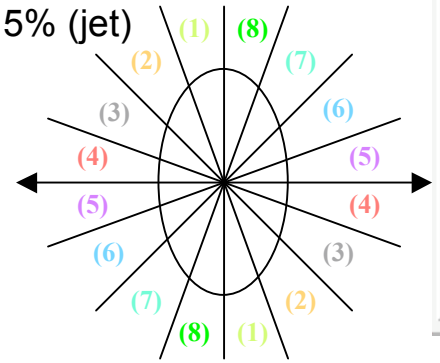
N_{Asso} (1~2 GeV/c) :
soft : 8
hard : 1 x f_{Jet} x 1.25[1/trig]

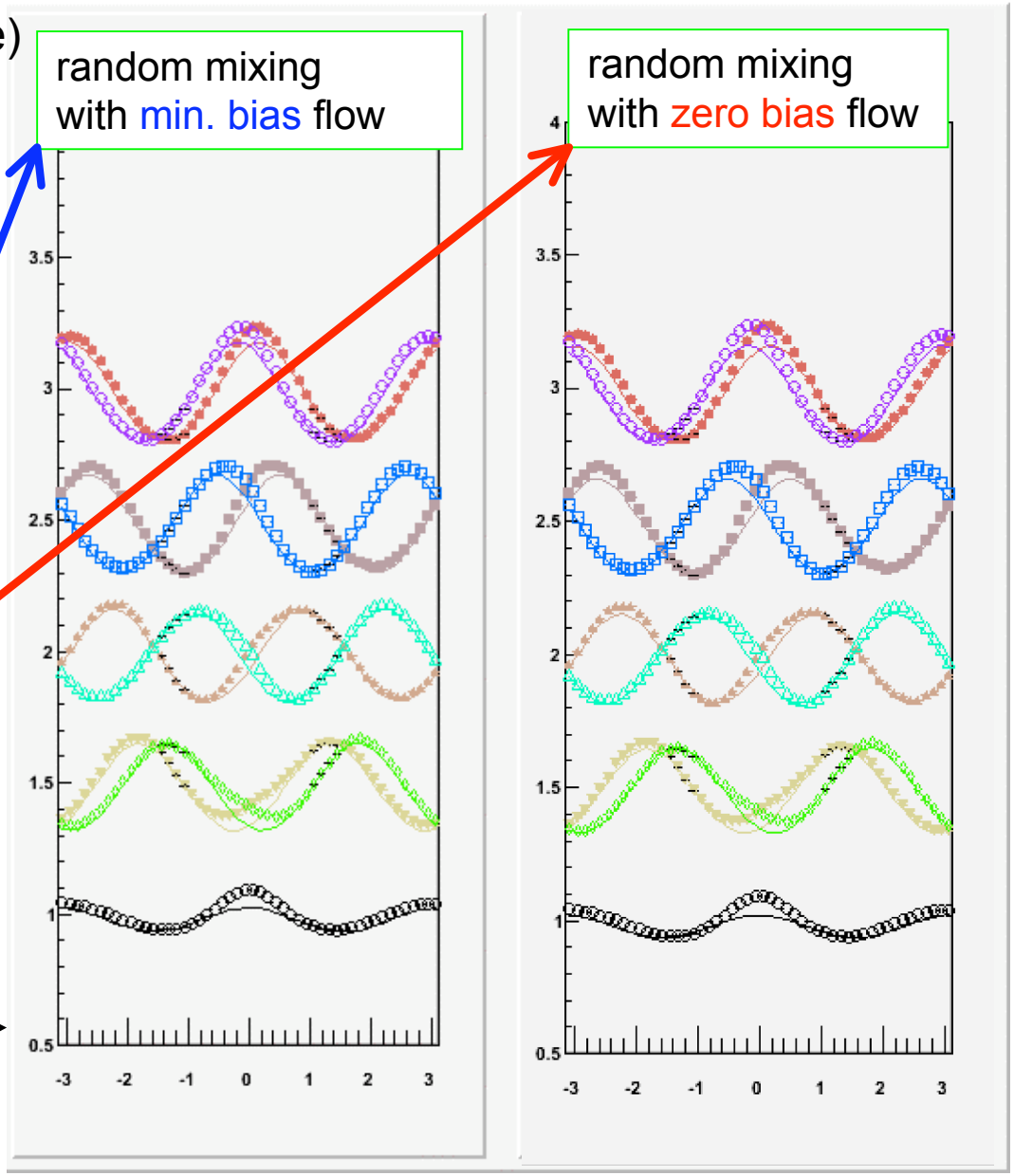
N_{Trig} (2~4 GeV/c) :
soft : 1 x (1-f_{Jet})
hard : 1 x f_{Jet}

f_{Jet} : 0.25

v_2^{Trig} : 19.6%

v_2^{Asso} : 13.1% (flow)
: 13.6% (m.b.)
: 14.9% (bias)
: 25.5% (jet)





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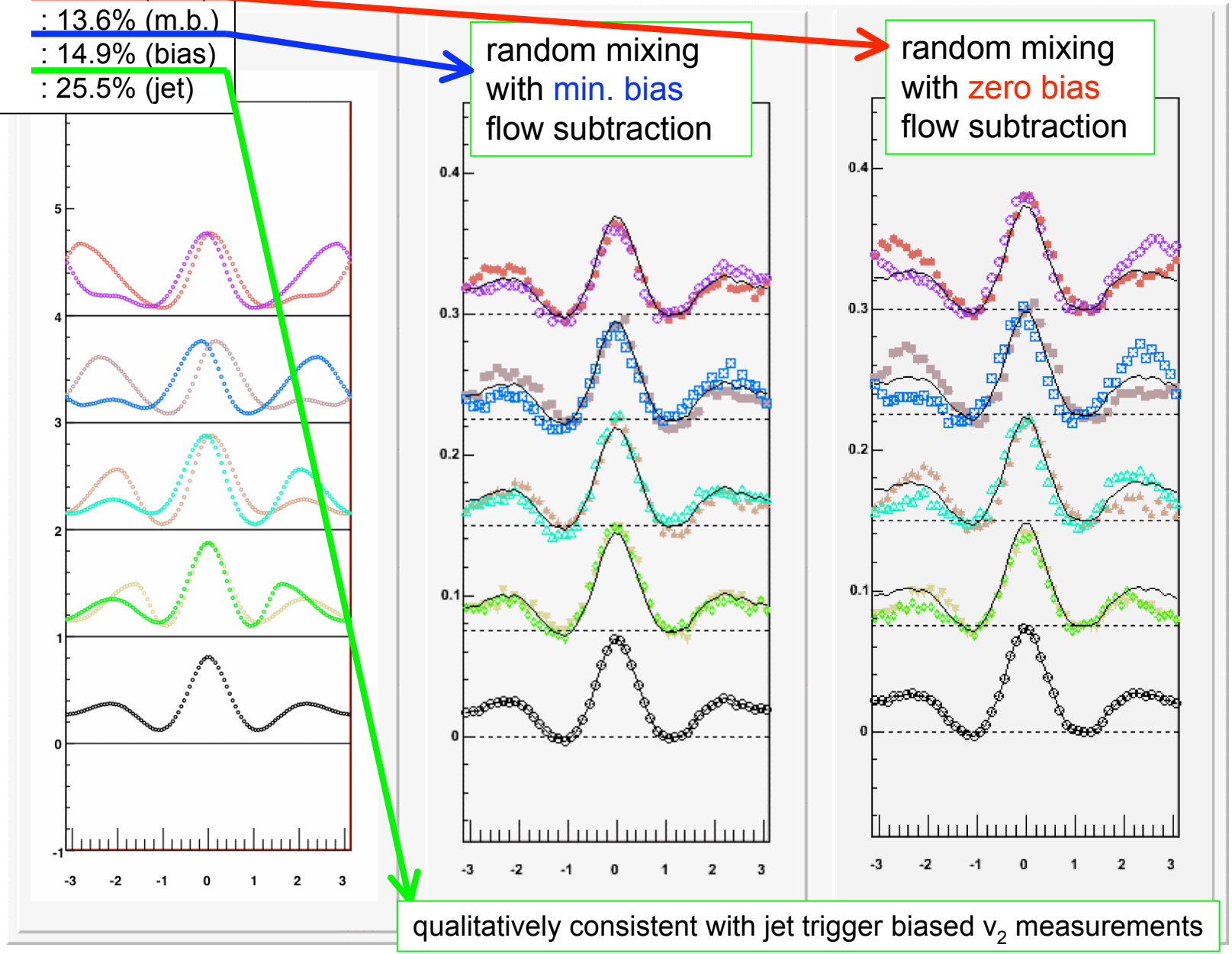
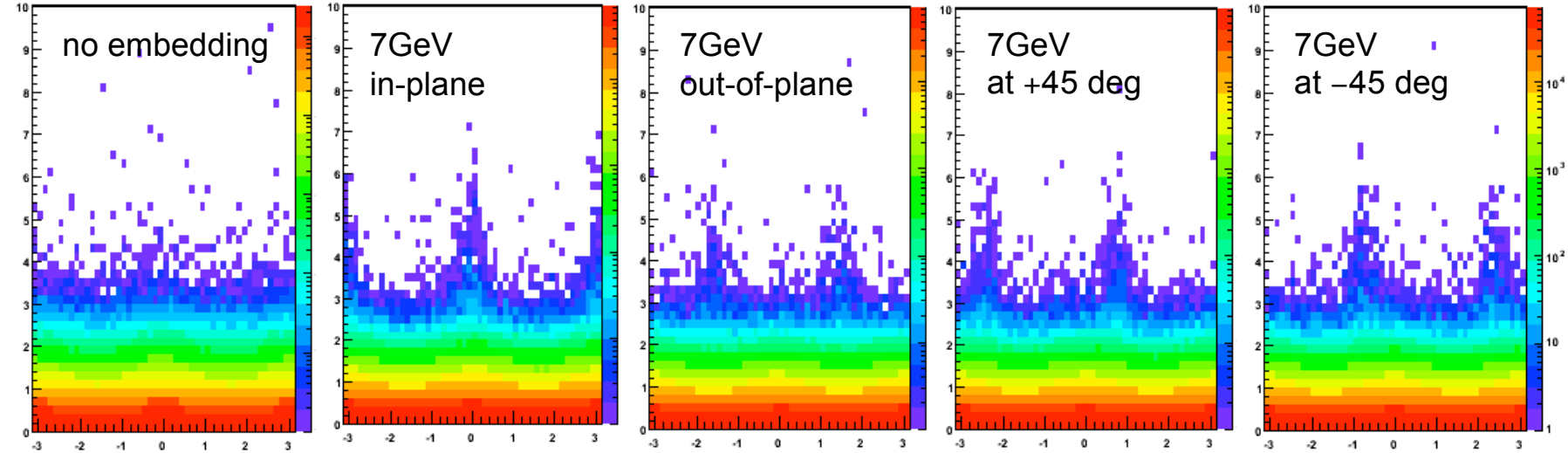
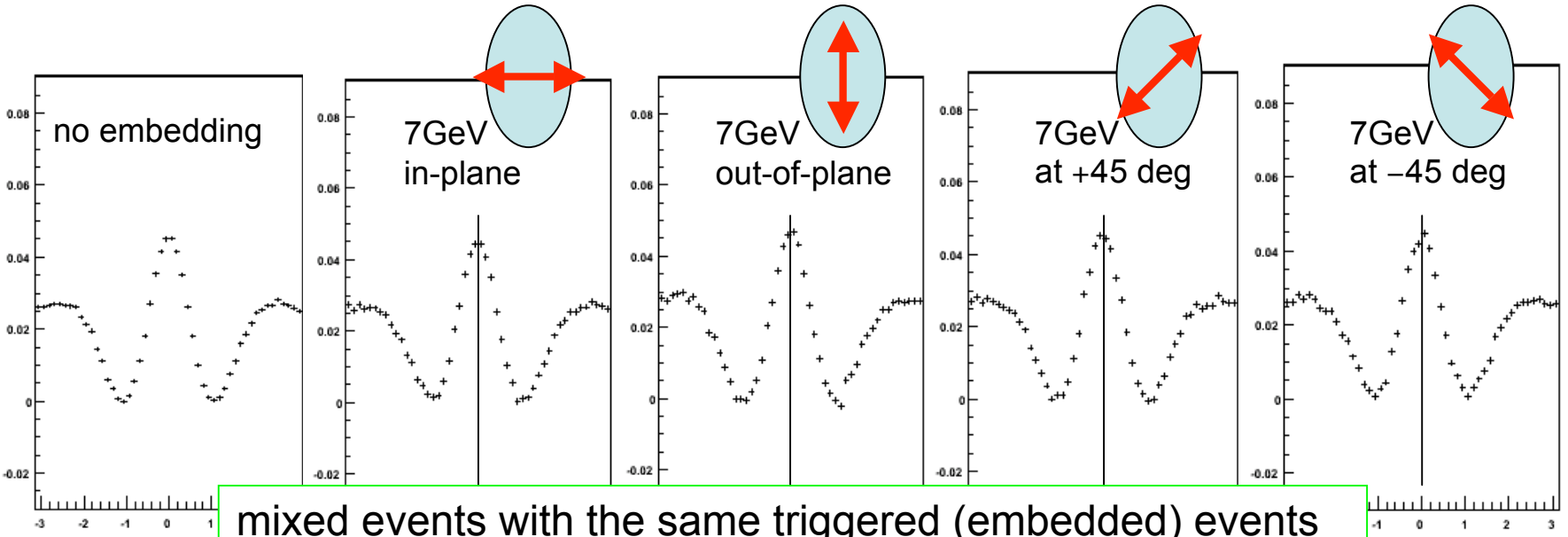


AMPT(v1.25/v2.25 string melting) : Au+Au 200GeV b=7fm (with embedding option)

Z.W.Lin, J.Jia,
S. Mohapatra,
S. Esumi





mixed events with the same triggered (embedded) events

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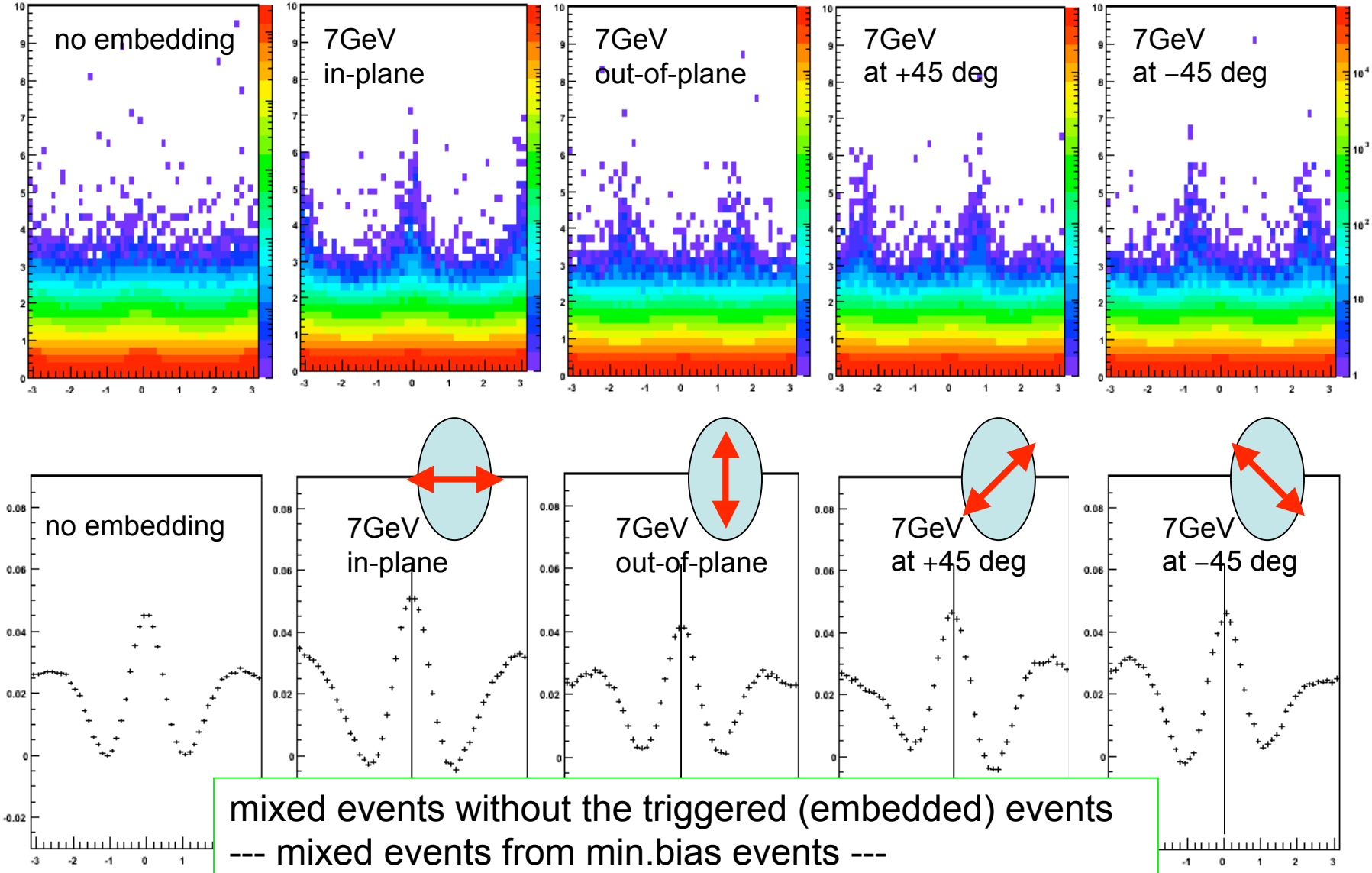


mixed events without the triggered (embedded) events
--- mixed events from min.bias events ---

Summary and Outlook (in back-ups)

(1) re-distribution of lost energy from jet quenching at low-middle p_T

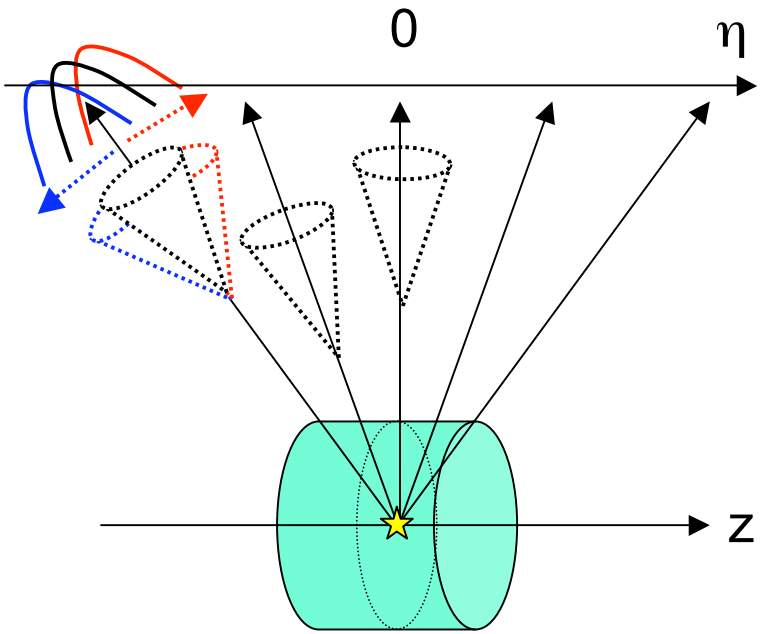
(2) strong R.P. dependence of the Mach-cone/ridge shape
strong preference of associate particle emission towards the in-plane

(3) trigger particle bias in soft particle v_2 can be understood qualitatively
what would be the true v_2 to be compared with hydro-model?

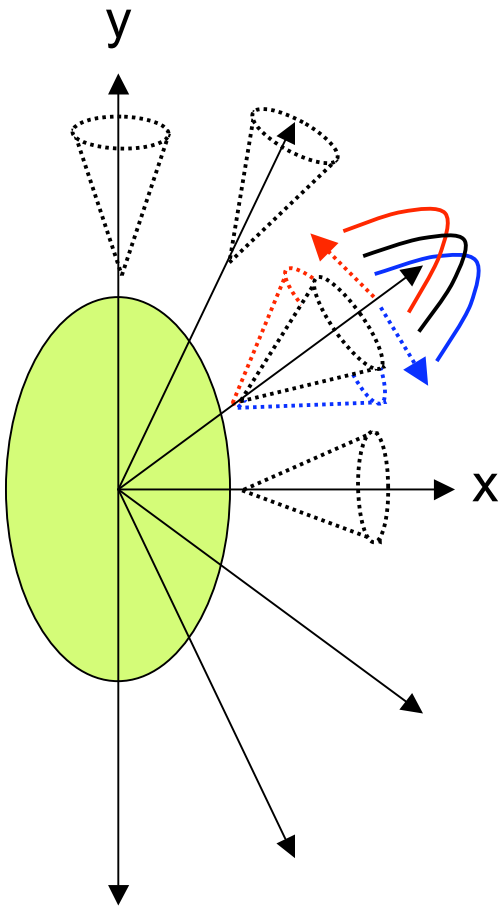
(4) hard/soft coupling with transverse/longitudinal geometry/dynamics

(5) controlled direction/depth bias with reconstructed jets

forward-backward asymmetry



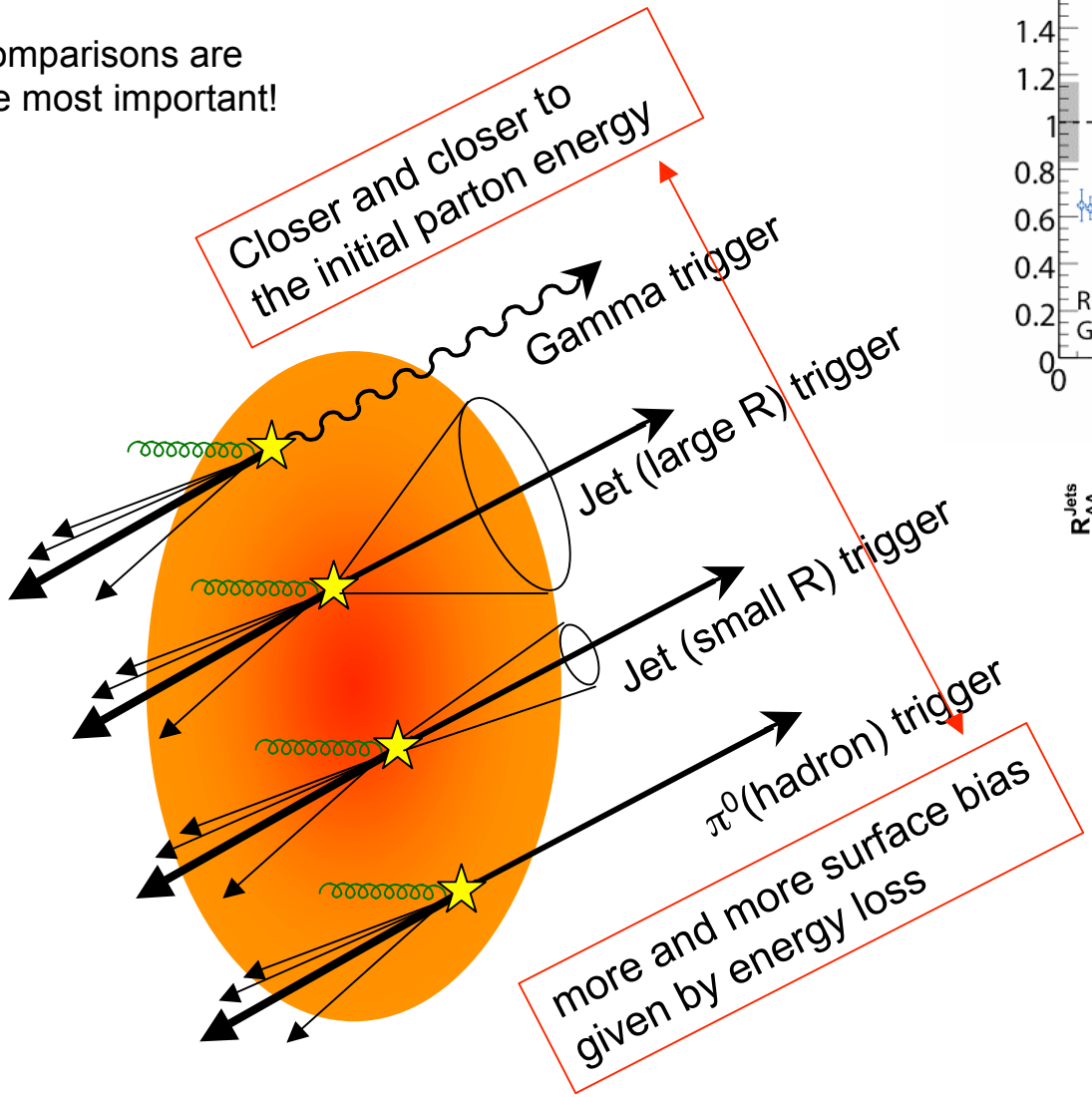
left-right asymmetry



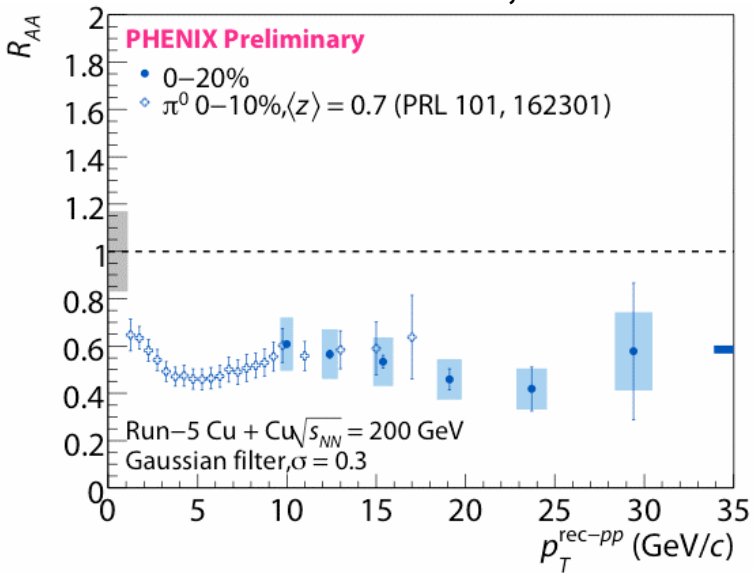
Takahito Todoroki : session BB

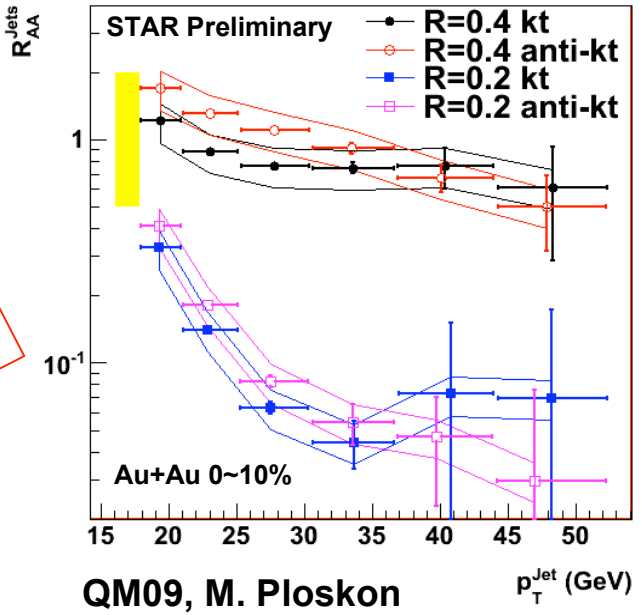
γ,Jet,π^0 - hadron correlation

Comparisons are the most important!



RHIC-AGS'09, Y. S. Lai

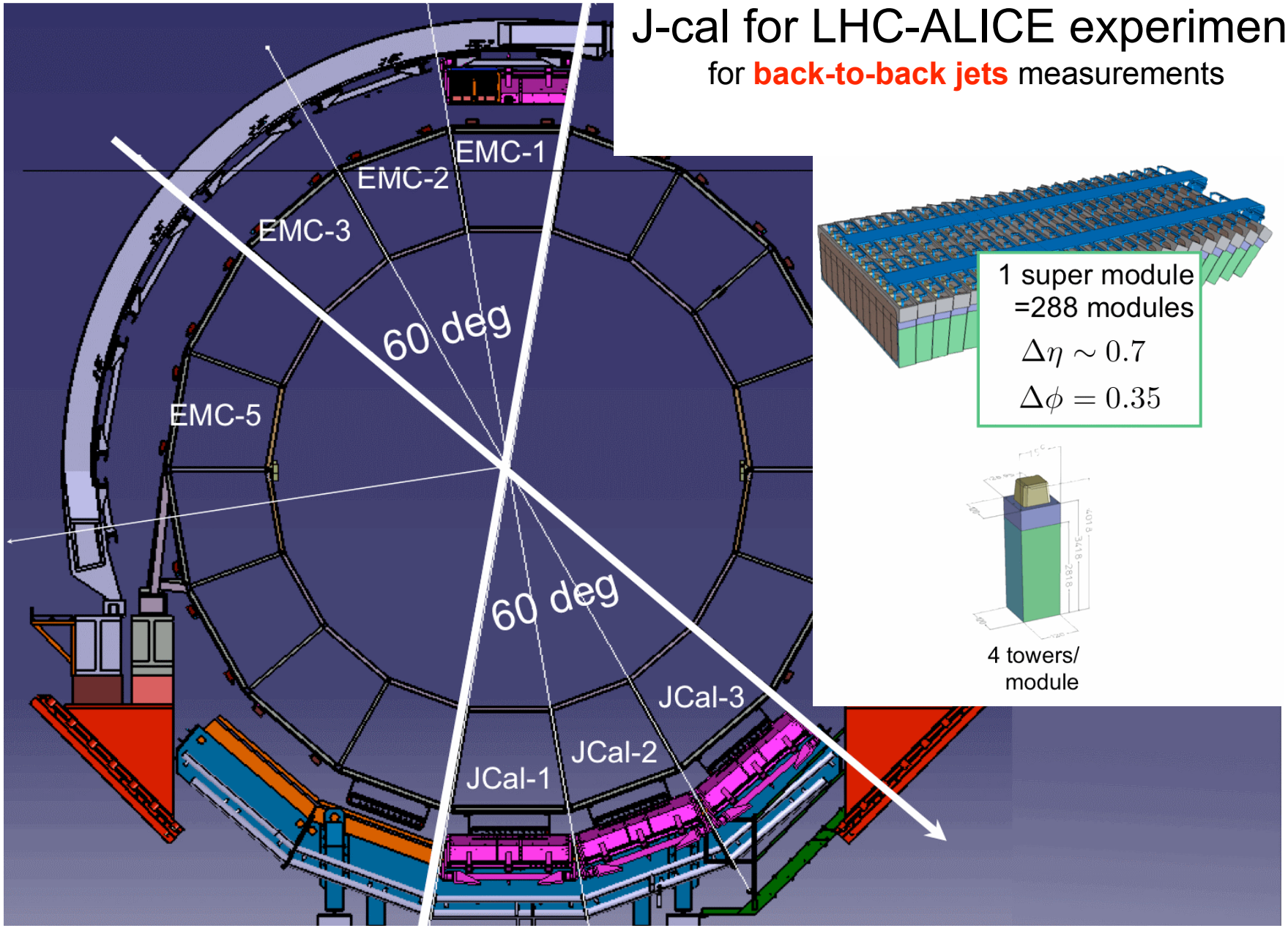




QM09, M. Ploskon

J-cal for LHC-ALICE experiment

for **back-to-back jets** measurements



1 super module
=288 modules

$\Delta\eta \sim 0.7$

$\Delta\phi = 0.35$

4 towers/
module