# Jet-like correlations with $V^0$ trigger particles in pp and Pb–Pb collisions at $\sqrt{s_{NN}} = 5.02$ TeV

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#### On the near-side :

- Change of the fragmentation function
- Change of the quark vs gluon jet ratio
- $\succ$  Bias on the parton  $p_{\mathrm{T}}$  spectrum.

# On the away-side :

The suppression at high  $p_{T,assoc}$  ( $I_{AA} < 1$ ) is evidence of parton energy loss.

The enhancement at low  $p_{T,assoc}(I_{AA} > 1)$ may involve an interplay of various contributions, such as  $k_T$  broadening, medium excitation, fragments from radiated gluons





### **Motivation**



• Why we measure  $I_{AA}$  for  $V^0 - h$ ?

Considering  $K_s^0$  and  $\Lambda$  are proxies of quark and gluon jets, we want to investigate :

- > The difference of the parton energy loss effects on quark and gluon jets
- The difference in the interaction amplitude with the medium for the quark and gluon jets



## **ALICE** detector







#### **Strange- hadrons correlations**









- The near-side peak size is slightly larger in the Pb–Pb collisions
- Away-side peak strongly suppressed in the Pb–Pb collisions in contrast to the pp



- Low p<sub>T,assoc</sub>: strong enhancement in near-side and away-side for all particles species
- High p<sub>T,assoc</sub>: suppression in away-side, no modifications in near-side for all particles species
- No significant specie-dependence in I<sub>AA</sub> within uncertainties specially in away-side



## I<sub>AA</sub>:Compare with published





• New measurement consistent with previous ones at  $\sqrt{s_{NN}} = 2.76 \text{ TeV}$ 



as expected

escribes  $I_{AA}$  , HIJING shows suppressions on the away-side at high  $\, {f p}_{T,a}$ 







♦ We studied near-side and away-side yield, and I<sub>AA</sub> for (K<sup>0</sup><sub>s</sub>-h), (Λ + Λ̄) - h and (h - h) in pp and Pb-Pb (0–10%)

- $I_{AA}$  shows strong enhancement at low  $p_{T,assoc}$  in near-side and away-side for all particles species
- $I_{AA}$  shows strong suppression at high  $p_{T,assoc}$  in away-side for all particles species
- $I_{AA}$  shows no significant specie-dependence specially in away-side.

We compared the result with published and model calculations.

- $I_{AA}$  shows good agreements with published result from  $\sqrt{s_{NN}} = 2.76 \text{ TeV}$
- AMPT performs better than other.





# Back-up





pp

#### Jet-like yield Model comparison



Away-side **Near-side** (h - h)1.2 0.6 **ALICE Preliminary ALICE Preliminary**  $(GeV^{-1}c)$ 0.5  $1/N_{\rm trig} \, dN/d\rho_{\rm T,assoc} \, ({\rm GeV}^{-1}c)$ pp vs = 5.02 TeV pp √s = 5.02 TeV 8<p\_\_\_\_\_<16 GeV/c 8<p\_tria<16 GeV/c 0.8 0.4 |Δφ-π|<1.2, |Δη|<0.7 |Δφ|<0.9, |Δη|<0.7  $1/N_{\rm trig}~{\rm d}N/{\rm d}p_{\rm T,assoc}$ 0.3 0.6 - AMPT AMPT h-h PYTHIA8 CR EPOS **PYTHIA8 CR** EPOS - - PYTHIA8 NoCR ----- PYTHIA6 - PYTHIA8 NoCR ----- PYTHIA6 0 0.2 0.1 6 8 9 10 6 8 9  $p_{\rm T,assoc}$  (GeV/c)  $p_{_{\mathrm{T,assoc}}} \, (\mathrm{GeV}/c)$ ALI-PREL-491133 ALI-PREL-491138 2.5 **ALICE Preliminary ALICE Preliminary**  $1/N_{\rm trig} \, dN/dp_{\rm T,assoc} \, ({\rm GeV}^{-1}c)$ 2.5 Pb-Pb (0-10%)  $\sqrt{s_{_{\rm NN}}}$  = 5.02 TeV  $1/N_{trig} dN/dp_{T,assoc}$  (GeV<sup>-1</sup>c) Pb-Pb (0-10%)  $\sqrt{s_{_{\rm NN}}}$  = 5.02 TeV 8<p\_\_\_\_<16 GeV/c  $8 < p_{T,trig} < 16 \text{ GeV}/c$ 2 |Δφ|<0.9, |Δη|<0.7 Δφ-π|<1.2, Δη|<0.7 .5-AMPT ---- h--h 1.5F AMPT -h-h Pb-Pb --- EPOS --- HIJING --- EPOS --- HIJING 0.5 0.5

9

 $p_{_{\mathrm{T,assoc}}} \, (\mathrm{GeV}/c)$ 

10

2

ALI-PREL-491128

2

6

5

9

 $p_{\rm T,assoc}~({\rm GeV}/c)$ 

8

10

6

5

3

AMPT, EPOS and PYTHIA qualitatively describes the yield in pp except lowest  $p_T$ 

AMPT and EPOS qualitatively 0 describes the yield in Pb-Pb

ALI-PREL-491123



#### Jet-like yield( Model comparison)





AMPT, EPOS and PYTHIA qualitatively describes the yield in pp except lowest *p<sub>T</sub>* 

AMPT and EPOS qualitatively describes the yield in Pb–Pb except lowest p<sub>T</sub>



#### Jet-like yield (Model comparison)



pp



AMPT, EPOS and PYTHIA qualitatively describes the yield in pp except lowest  $p_T$ 

AMPT qualitatively describes 0 yield in Pb–Pb except lowest  $p_T$ .