ExtreMe Matter Institute Rapid Reaction Task Force Symposium
The space-time structure of jet quenching: theory and experiment
GSI, Darmstadt, Germany, August 14, 2019

Dynamical core-corona initialization and its application to jet physics

Tetsufumi Hirano & Yuuka Kanakubo
Sophia Univ.

Setting

Input model: PYTHIA ver.8.230, heavy ion mode

Output model: (+ dynamical core-corona initialization)

System:

- Pb+Pb 5.02 TeV, parton level or hadron level
- # of events: 3K (Pb+Pb)
- p+p 7 TeV, parton level or hadron level
- # of events: 6.5K (p+p)

Mode: $p_{thatmin}$ = 300 GeV

Jet finding: Anti-kT algorithm via FASTJET

De-clustering: Cambridge-Aachen algorithm via FASTJET

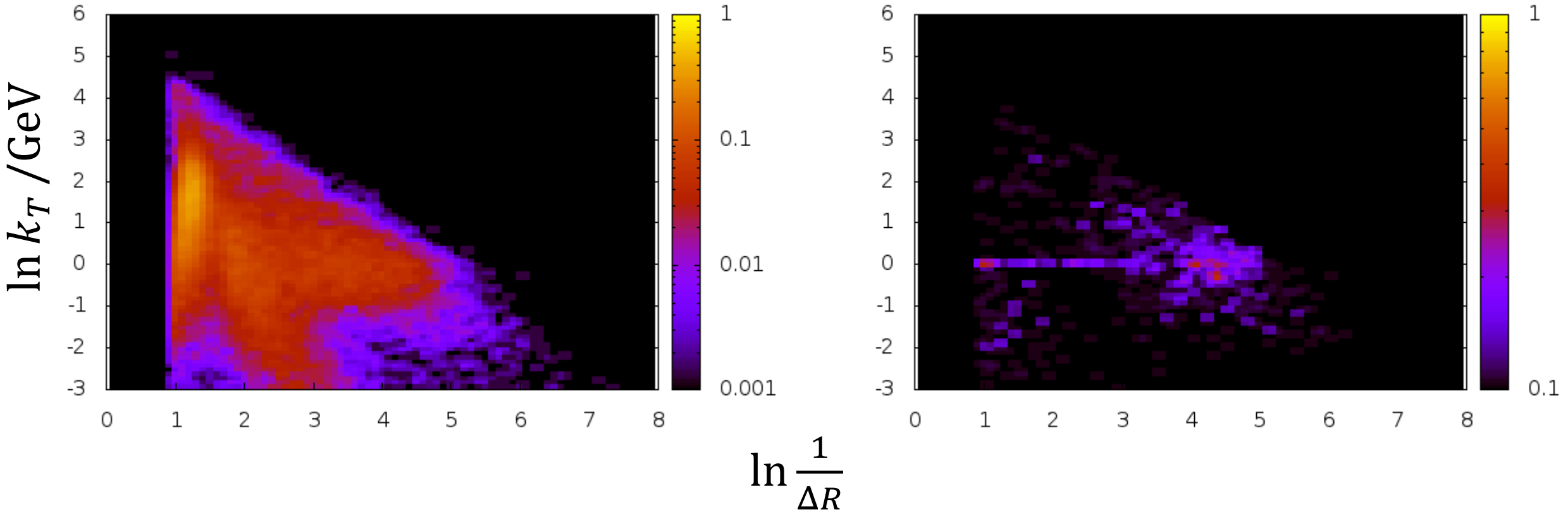
Observables: Lund plane, EMMI plane

Lund

Lund: Pb+Pb 5.02 TeV, parton level

input

output

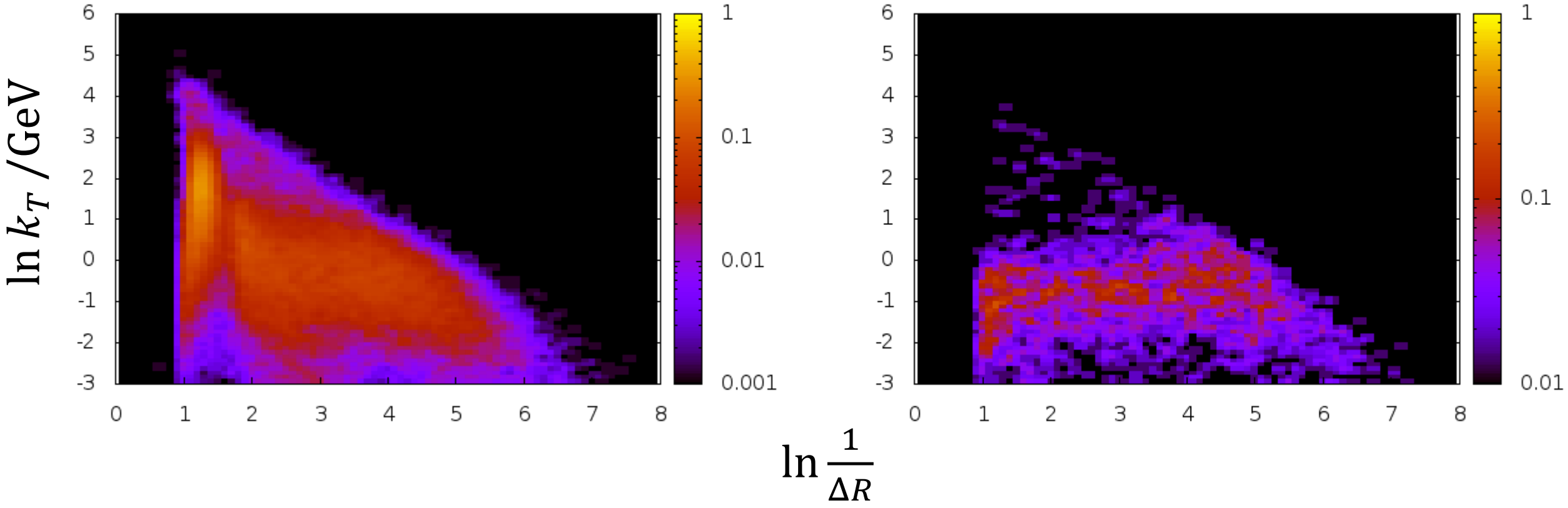


Anti-kT R=0.4, p_{Tcut} = 350 GeV, |eta|<2.0, C/A declustering

Lund: Pb+Pb 5.02 TeV, hadron level

input

output



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Lund: p+p 7 TeV, parton level

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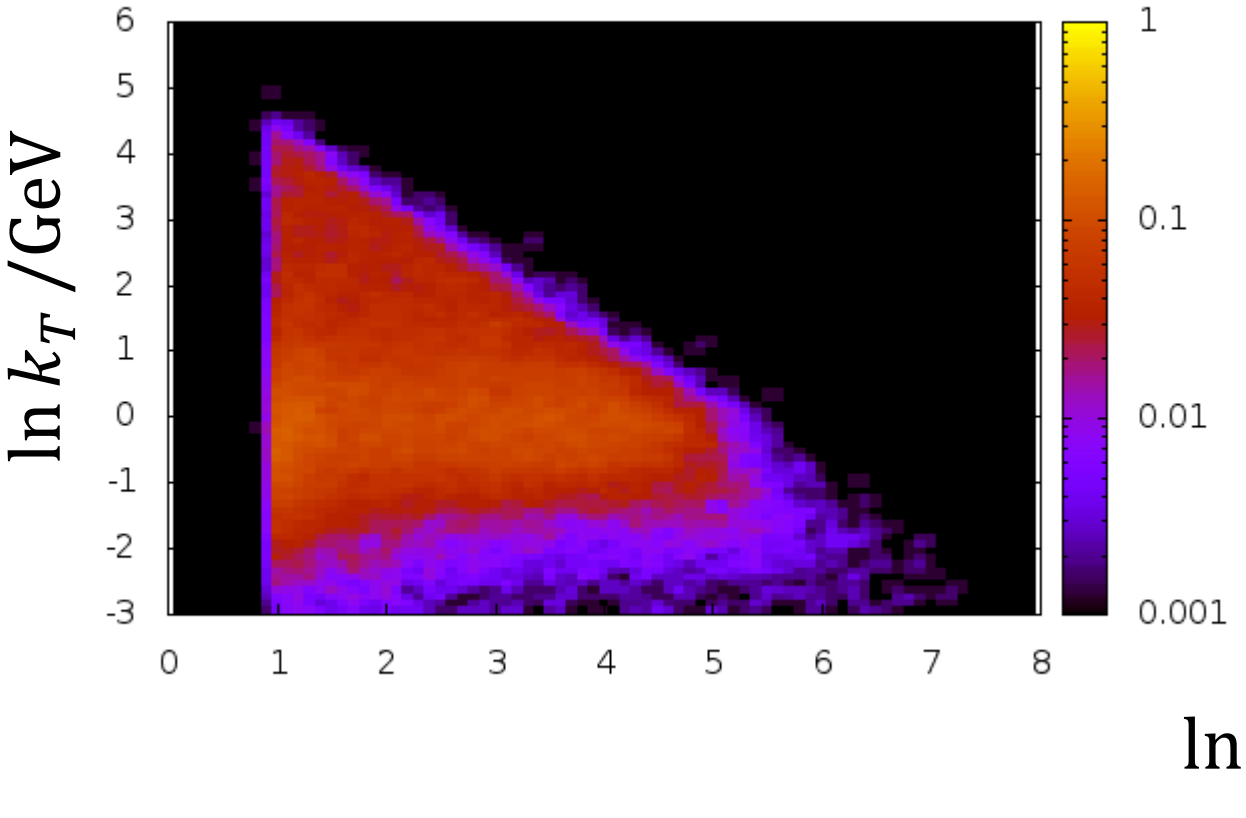
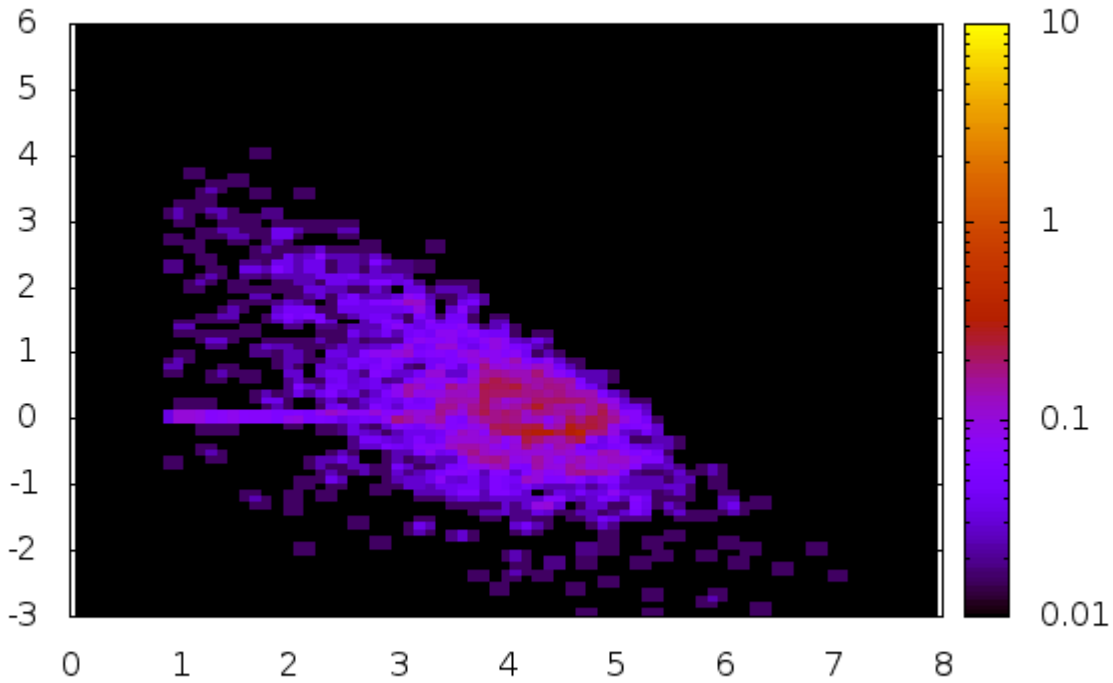


output



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Lund: p+p 7 TeV, hadron level

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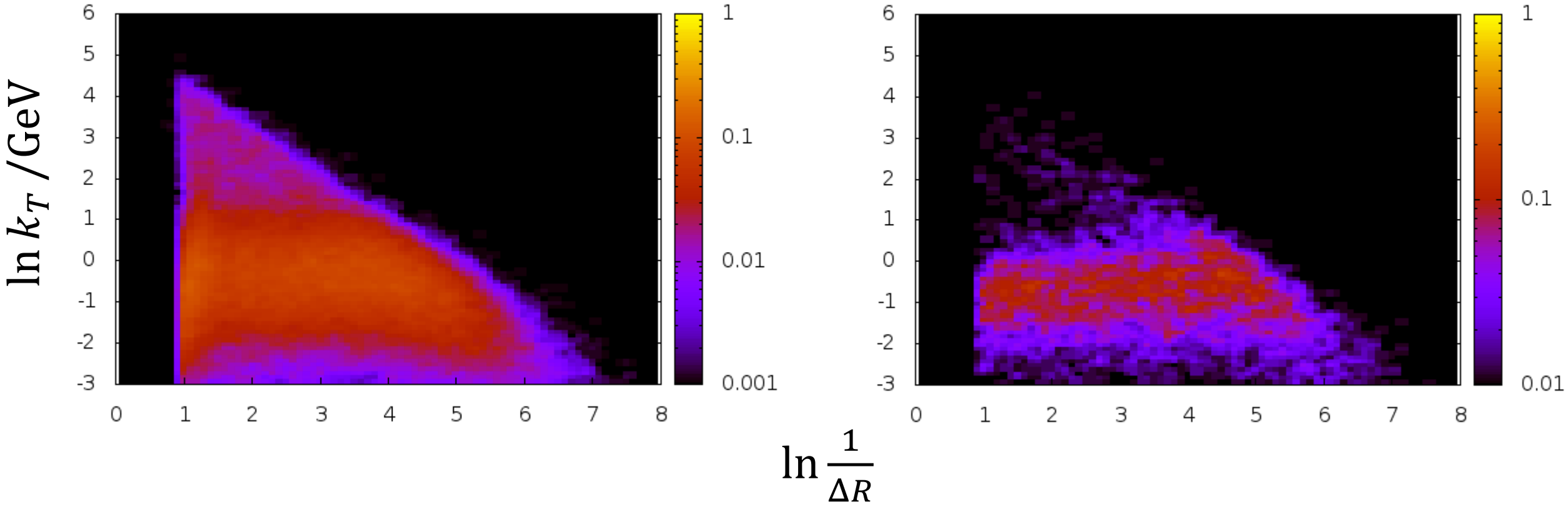
output



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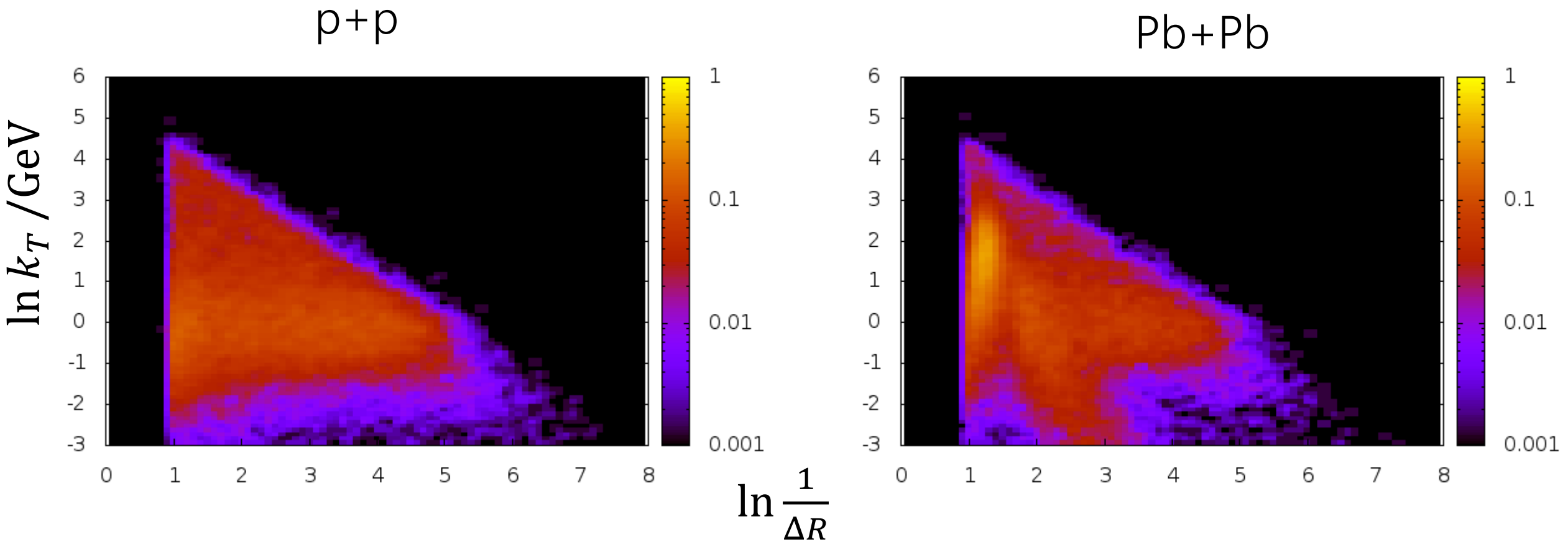
Comparison btw p+p and Pb+Pb, parton level



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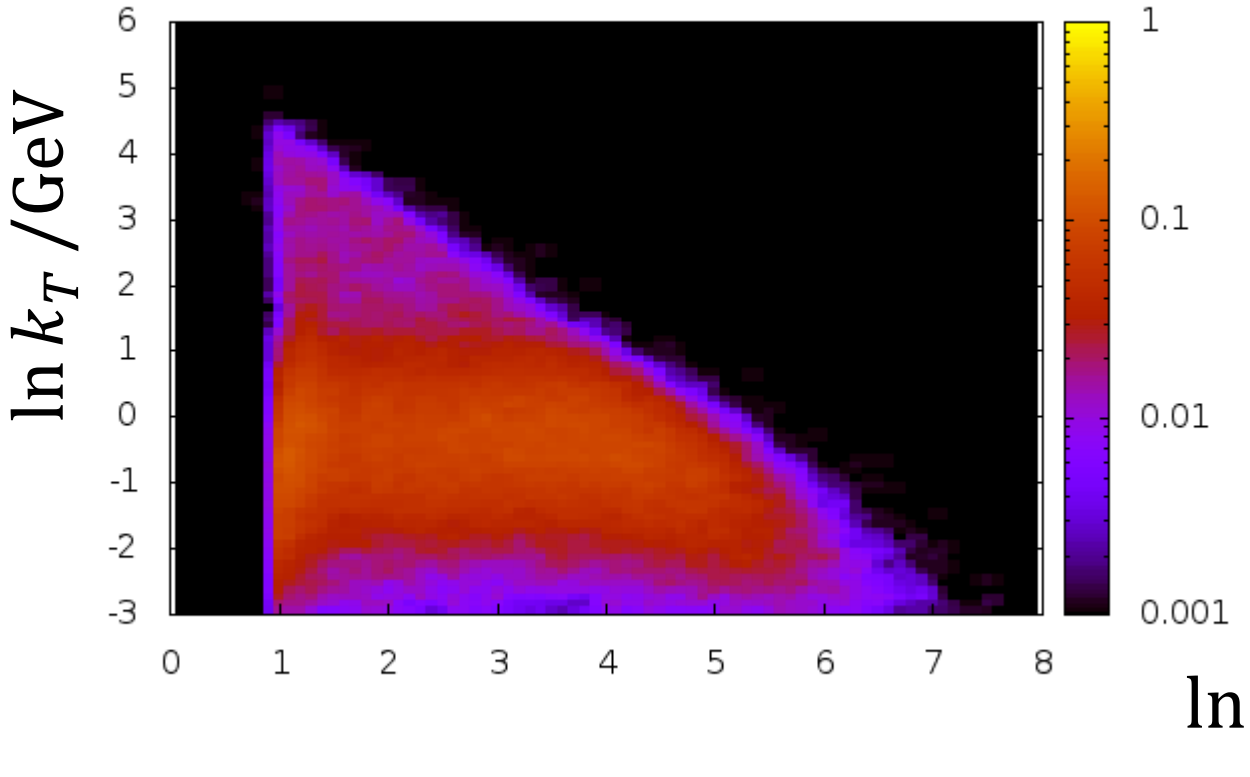
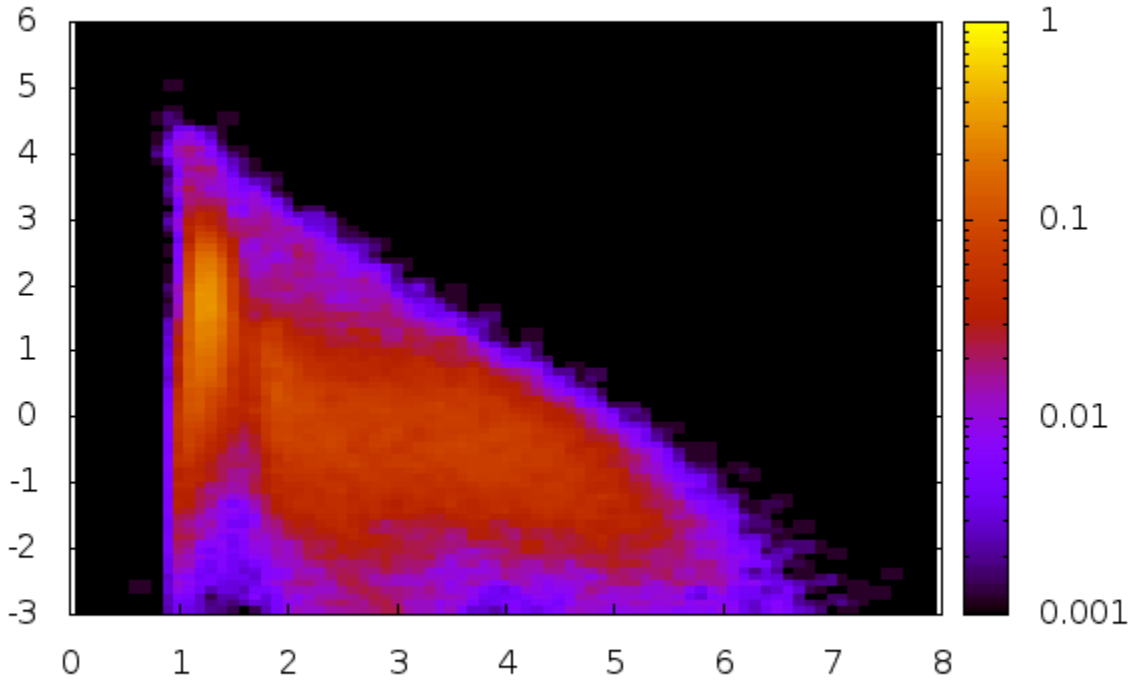
Comparison btw p+p and Pb+Pb, hadron level

p+p



Pb+Pb



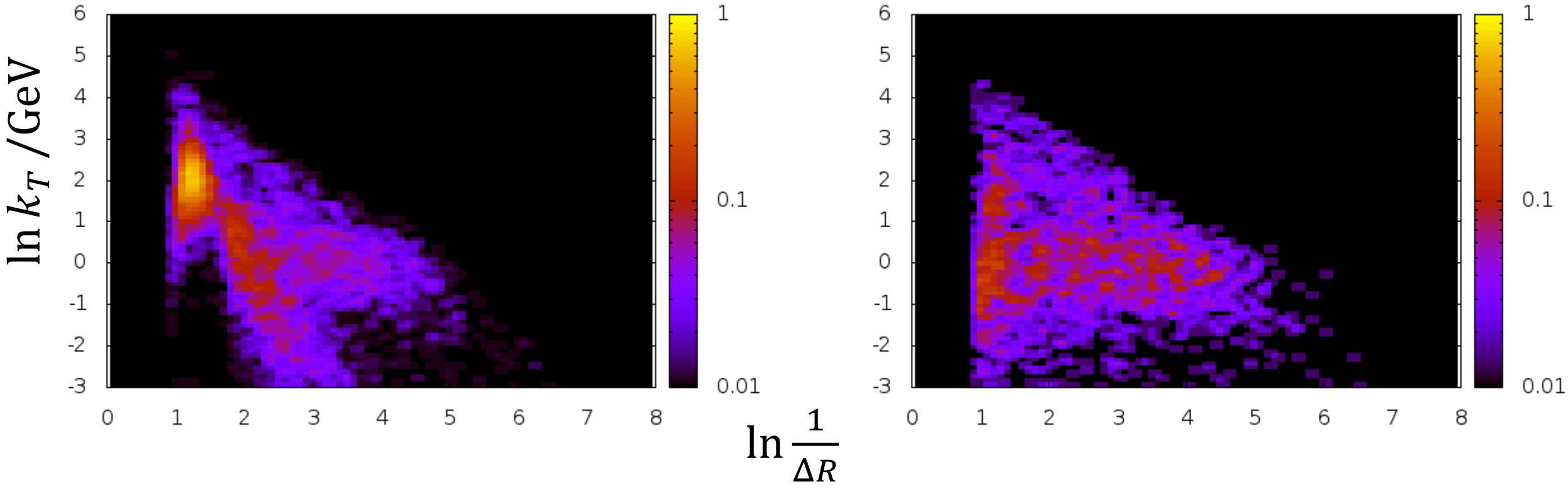
Anti-kT R=0.4, p_{Tcut} = 350 GeV, |eta|<2.0, C/A declustering

Lund: Multiplicity dependence

Comparison btw high and low multiplicity , parton level

Pb+Pb, dNch/deta> 1505

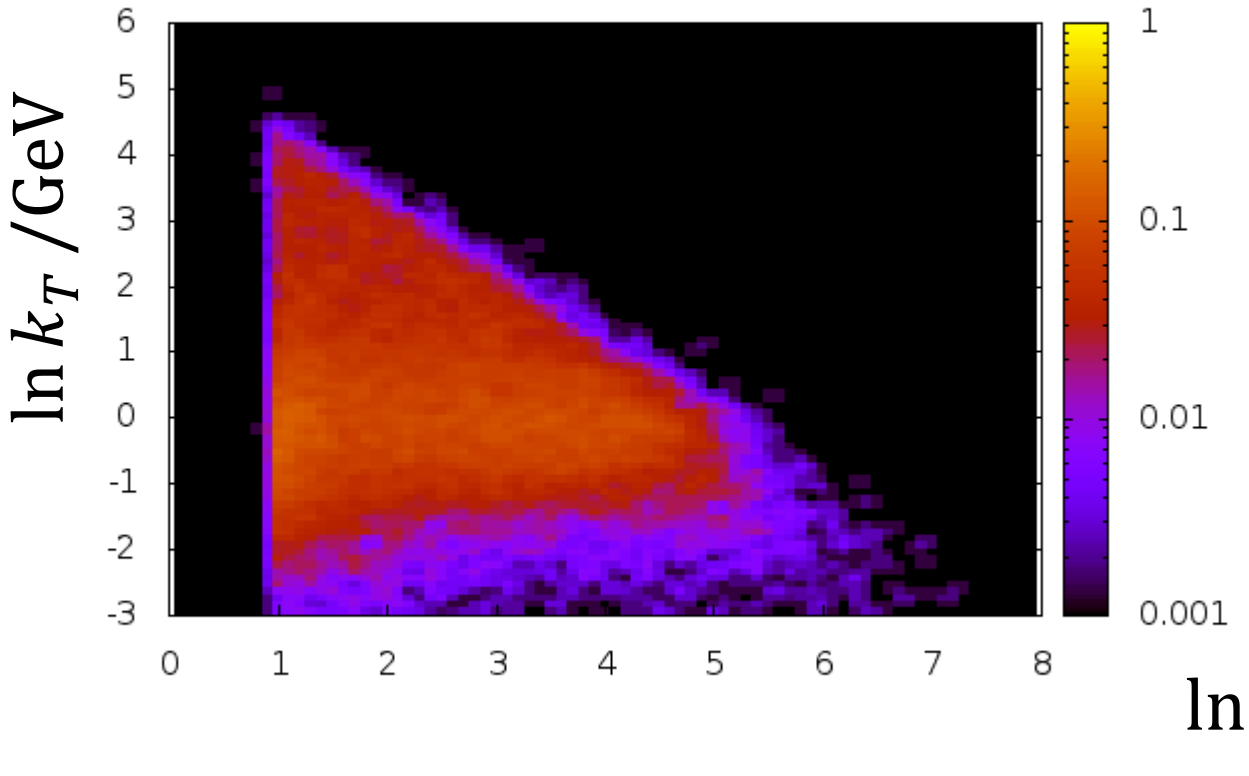
Pb+Pb, dNch/deta < 96



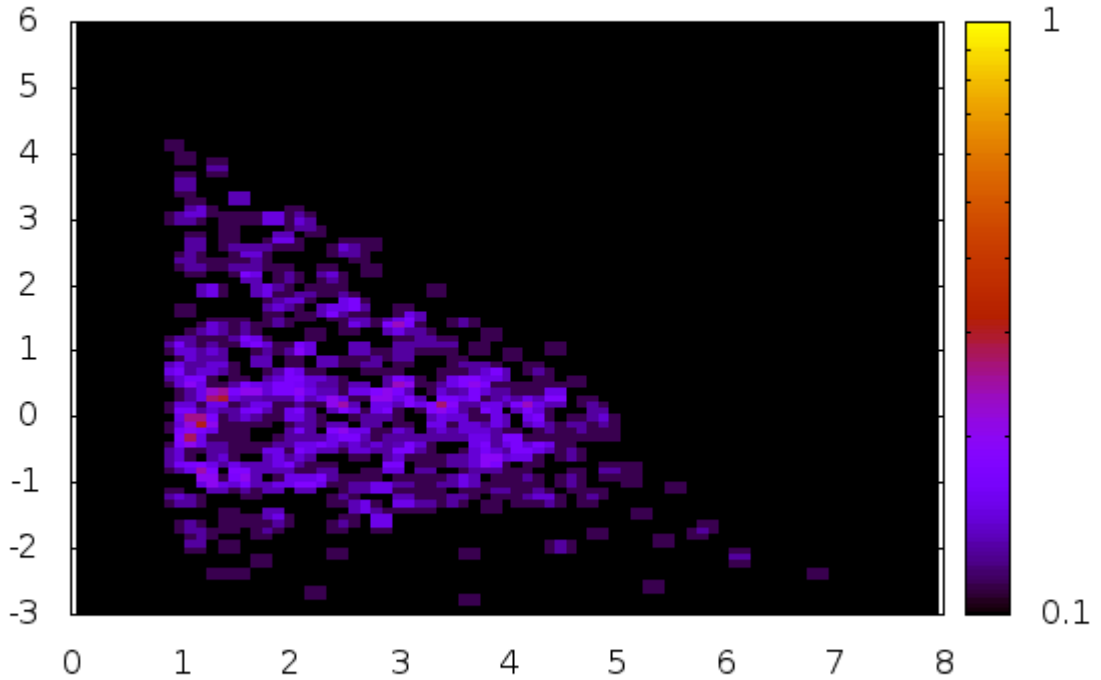
Anti-kT R=0.4, p_{Tcut} = 350 GeV, |eta|<2.0, C/A declustering

Comparison btw high and low multiplicity , parton level

p+p, dNch/deta > 20



p+p, dNch/deta < 5



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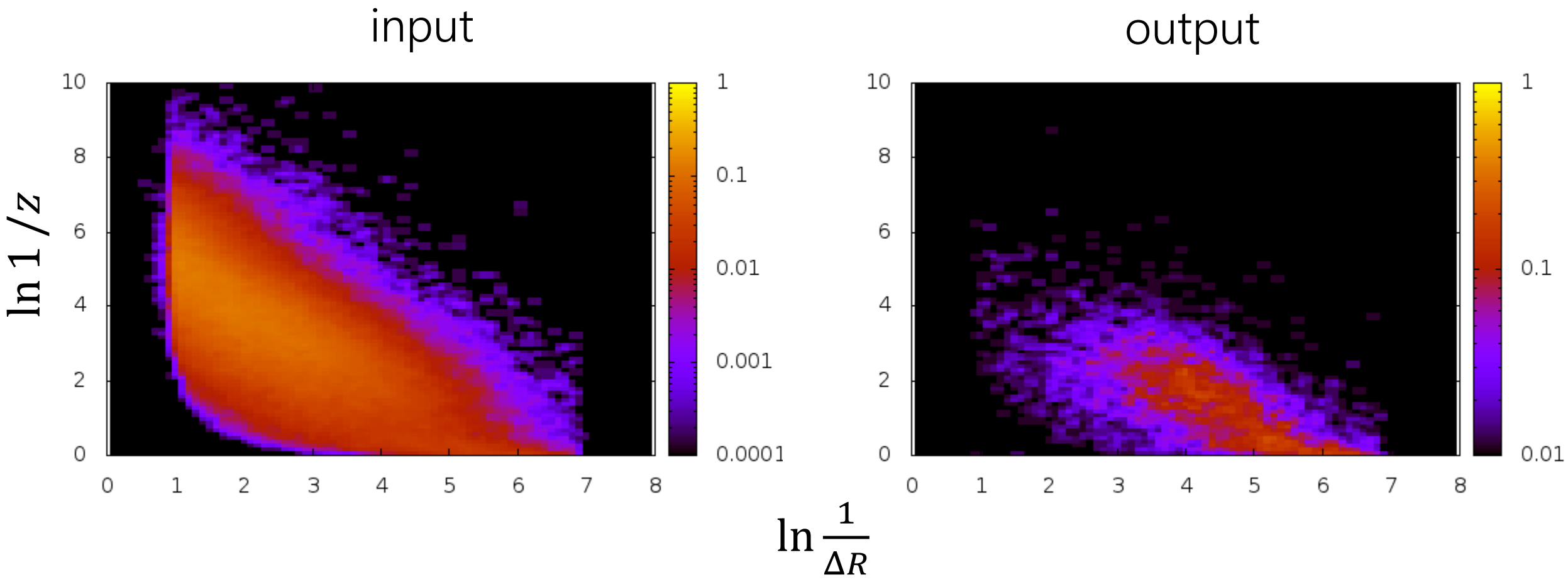
EMMI

EMMI: p+p 7 TeV, ptjet = 350 GeV, parton level



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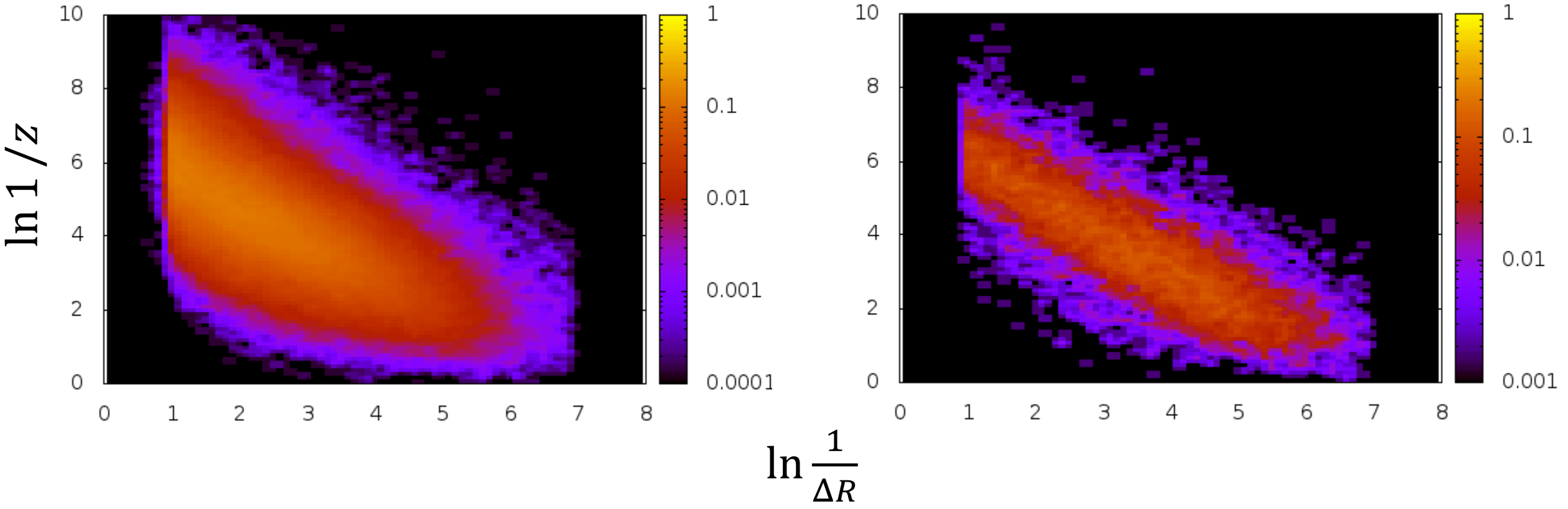
EMMI: p+p 7 TeV, ptjet = 350 GeV, hadron level

input

output



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