Measurements of Nuclear Modification Factor of Inclusive Full Jet Measurements in Pb-Pb Collisions at $\sqrt{s_{\rm NN}} = 5.02$ TeV with LHC-ALICE Takuya Kumaoka, University of Grenoble, University of Tsukuba, RIKEN, for the ALICE collaboration

Introduction

Study purpose :

Elucidate properties of the Quark-Gluon Plasma (QGP) and the Quantum chromodynamics (QCD)

- QGP is a matter state that is predicted by QCD at very high temperature and pressure.

 \rightarrow It has already discovered by indirectly way, but we still do not know the detail of the QGP property (QCD interaction behavior in QGP, temperature, evolution, etc ...) \rightarrow To unravel the QCD interaction in QGP, we

measure the nuclear modification factor (R_{AA}) of jets that is a hard probe.

The $R_{\Delta\Delta}$ is calculated by jet yield comparison between p-p and Nucleus-Nucleus collision scaled by the number of binary nucleonnucleon collisions.

Data Set

LHC-ALICE

 $\sqrt{s_{\rm NN}} = 5.02$ TeV, Pb-Pb collision, 2015 run data, Minimum bias event : ~4.2M events. Centrality 0-10%, Full jet (include nutral particle)





Reference

1) S. Acharya et al. (ALICE Collaboration, Phys. Rev. C 101, 034911 – Published 16 March 2020, 2) Hannah Bossi for the ALICE Collaboration, arXiv:2009.02269v1 4 Sep 2020, 3) Rüdiger Haake1 and Constantin Loizides, Phys. Rev. C 99, 064904 (2019)



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Fig5. Residual distributions for several