



Contribution ID: 479

Type: Poster

## Anisotropic flows and the shear viscosity of the QGP within a transport approach with initial state fluctuations.

*Tuesday 20 May 2014 16:30 (2 hours)*

We discuss the build up of elliptic flow and high order harmonics  $v_n$  within a transport approach at fixed shear viscosity to entropy density ratio and with initial state fluctuations. We show, exploring the  $T$  dependence of  $\eta/s$ , that a study of  $v_n$  in a wide  $p_T$  range allows to understand the difference behind the collective flows at LHC respect to RHIC. Furthermore we present novel results about the impact of  $\eta/s$  on the correlations between the initial space eccentricity  $\epsilon_n$  and the final anisotropic flows  $v_n$ .

In particular we study the effect of a temperature dependent  $\eta/s$  at different beam energies from RHIC for  $Au + Au$  at  $\sqrt{s} = 62.4, 200$  GeV to LHC energies for  $Pb + Pb$  at  $\sqrt{s} = 2.76$  TeV. We find that for the different beam energies considered the suppression of the elliptic flow due to the viscosity of the medium has different contaminations coming from the hadronic or QGP phase depending on the average energy of the system.

### References

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**Session Classification:** Poster session

**Track Classification:** Collective Dynamics