
Seminar Fizičkog odsjeka

Vrijeme (s.t.)

Mjesto

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predavaonica F102

New Exact Solutions of Rotating Fireball Hydrodynamics and Search for the QCD Critical Point

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A new class of analytic, exact, rotating, self-similar and surprisingly simple solutions of non-relativistic hydrodynamics are presented for a three-dimensionally expanding, spheroidally symmetric fireball. These results generalize earlier, non-rotating solutions for ellipsoidally symmetric fireballs with directional, 3-dimensional Hubble flows. The solutions are presented for a general class of equations of state that includes the lattice QCD equations of state and may feature inhomogeneous temperature and corresponding density profiles [1]. The effect of the rotation of the fireball on hadronic observables were calculated recently [2] and the spheroidal symmetry was generalized for rotating ellipsoidal expansions [3]. The results are discussed in the context of a search for the critical point of QCD with particular emphasis on the recent observations of a non-monotonic behaviour of HBT radii in the PHENIX and STAR experiments at RHIC [4,5].

References:

- [1] T. Csörgő, M.I. Nagy, Phys.Rev. **C89** (2014) 044901 [arxiv:1309.4390]
- [2] T. Csörgő, M.I. Nagy and I.F. Barna, talk at WPCF 2014 [in preparation]
- [3] T. Csörgő, M.I. Nagy, talk at WPCF 2014 [in preparation]
- [4] A. Adare, . . . , T. Csörgő et al., PHENIX Collaboration, [arXiv:1410.2559]
- [5] R.A. Lacey, Phys.Rev.Lett. **114** (2015) 14, 142301 [arXiv:1411.7931]

Voditelj seminarâ FO
Damir Pajić i Ivica Smolić