

## New exact solutions of relativistic hydrodynamics and their applications

*Thursday, 28 February 2019 14:30 (25 minutes)*

A recently found new family of exact solutions of 1+1 dimensional relativistic hydrodynamics will be presented, and its applications to describe the pseudorapidity density, the HBT radii and the estimation of the initial energy density in proton-proton and heavy ion collisions at LHC, RHIC and SPS energies will be reviewed. The talk will focus on a recently discovered signal of a non-monotonic behaviour of the initial energy densities in heavy ion collisions at RHIC energies.

References:

- 1) Lifetime estimations from RHIC Au+Au data.  
G. Kasza and T. Csörgő, [arXiv:1811.09990].
- 2) A new and finite family of solutions of hydrodynamics: Part III: Advanced estimate of the life-time parameter.  
T. Csörgő and G. Kasza, [arXiv:1810.00154].
- 3) A new and finite family of solutions of hydrodynamics: Part II: Advanced estimate of initial energy densities.  
G. Kasza and T. Csörgő, [arXiv:1806.11309 [nucl-th]].
- 4) A new and finite family of solutions of hydrodynamics. Part I: Fits to pseudorapidity distributions.  
T. Csörgő, G. Kasza, M. Csanád and Z.F. Jiang, [arXiv:1806.06794].
- 5) New exact solutions of relativistic hydrodynamics for longitudinally expanding fireballs.  
T. Csörgő, G. Kasza, M. Csanád, Z.F. Jiang, [arXiv:1805.01427].  
10.3390/universe4060069, Universe 4 (2018) 69.

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