The geometry of collapsing isotropic fluids

Roberto Giambò

September 6∼9, 2011

Email: *roberto.giambo@unicam.it*

The study of spacetimes modeling a collapsing spherical isotropic fluid has always been a recurrent topic for relativists – its connection with Tolman–Bondi solution, one of the few known-in-details solutions dynamically collapsing to a singularity, makes it one the most intriguing problem in gravitational collapse. Some results are known from numerical relativity but very few is known about the geometry of the solutions – whether a singularity is developed, and if that is the case, what is the causal structure of the solution. I will sketch a recent line of research aiming to shed new light on the above aspects.

Joint research (work in progress) with: Fabio Giannoni (Camerino), Giulio Magli (Milan Politecnico), Daniele Malafarina and Pankaj S Joshi (Tata Institute, Mumbai)

References

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