

General Relativity and Quantum Cosmology

Relativistic versus Newtonian frames: emission coordinates

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Only a causal class among the 199 Lorentzian ones, which do not exist in the Newtonian spacetime, is privileged to construct a generic, gravity free and immediate (non retarded) relativistic positioning system. This is the causal class of the null emission coordinates. Emission coordinates are defined and generated by four emitters broadcasting their proper times. The emission coordinates are covariant (frame independent) and hence valid for any user. Any observer can obtain the values of his(her) null emission coordinates from the emitters which provide him his(her) trajectory.

Comments: 6 pages, 3 figures, added references, minor changes, Talk presented by one of us (JFPS) at the 2nd Colloquium "Scientific and Fundamental Aspects of the Galileo Programme", Padua, Italy, 14-16 October 2009, submitted to the Proceedings

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