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CPT as a possible discrete symmetry in cosmology

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The CPT theorem, which holds for quantum field theories, and also for current string/membrane models, implies that the laws of physics are invariant under CPT, which thereby becomes an exact elaborated version of time reversal symmetry. We explore the possibility that CPT is also a symmetry of the physical state or ensemble. In this scenario, there is a central time with a matter dominated universe on one side and an antimatter dominated version on the other side, each evolving away from the central time from the viewpoint of an embedded observer. On the other hand, thermodynamic time could be seen as having an origin at this central time, at which the entropy would be a minimum. This would give an alternative relationship between dynamical and thermodynamic time, with each having the expected properties.

Content of the contribution

Theory

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