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Physical Implications of a Fundamental Period of Time

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If time is described by a fundamental process rather than a coordinate, it interacts with any physical system that evolves in time. The resulting dynamics has recently been shown to be consistent provided the fundamental period of the time system is sufficiently small. A strong upper bound $T_C < 10^{-33}s$ of the fundamental period of time, several orders of magnitude below any direct time measurement, can be obtained from bounds on dynamical variations of the period of a lab system evolving in time. Possible cosmological implications will be discussed.

Presenter: BOJOWALD, Martin