

International Conference on

Planetary Science and Particle Physics

August 27-28, 2018 | Boston, USA

Quantum cosmology of a conformal multiverse

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In this talk the author will present the model of a conformal multiverse, for which exact solutions can be found. The universes are created in entangled pairs with spacetimes that are both expanding in terms of the time variables experienced by internal observers in their Particle Physics experiments. The time variables are related by an antipodal-like symmetry that might explain why there is no antimatter in our universe: at the origin, antimatter was created, by definition and for both observers, in the observer's partner universe. The Euclidean region of the spacetime that separates the two universes acts as a quantum barrier that prevents matter-antimatter from collapse. Moreover, the creation of universes in entangled pairs would leave observable imprints on the properties of the universes: i) it would induce a departure from the expected evolution of the spacetime of a single universe; and, ii) it would modify the lowest modes of the spectrum of fluctuations of the matter fields, allowing us to look for observational imprints of the multiverse in the properties of a universe like ours.

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