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The Origin and Meaning of the Primeval Atom Hypothesis: how quantum physics meets Lemaître's cosmology

Monday 17 June 2024 09:40 (40 minutes)

The aim of the talk is to explain, with some historical details, where the concept of Lemaître's Primeval Atom Hypothesis (1931) came from. We will confront this Hypothesis with his studies (1933-1940) on the initial singularity (and the way to avoid it) and also on the Cosmological Constant, as well as on the Cosmic Rays. We will show how all these intuitions and studies are supported by Quantum Mechanical intuitions and interpretations. In fact, in the Thirties, Lemaître published several papers in connection with Quantum Theory : on Heisenberg Uncertainty Principle and on spinors (what we call now Majorana spinors) in the context of Eddington-Dirac Equation (with the hope to catch a unified fundamental theory). Lemaître was probably one of the very first physicists who suggested to search a link between quantum phenomena and gravitation aiming to understand the deep structure and history of the Universe.

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