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Cosmological Genesis: Approaches and Problems.

Thursday 28 January 2021 11:00 (2 hours)

Cosmological Genesis is a scenario without initial singularity, in which the Universe starts off from nearly Minkowski state with nearly vanishing energy density, then the energy density increases, the expansion rate grows; at some later epoch the energy density is converted into heat, and the conventional hot epoch begins (variant: at some later epoch energy density stops increasing and inflationary epoch begins).

Clearly, this scenario requires exotic form of matter, which violates energy conditions, and/or exotic modification of gravity. This talk will concentrate on scalar-tensor theories of Horndeski type, and generalizations thereof. Despite initial high expectations, there are problems with stable and subluminal Genesis in these theories. These problems, and attempts to solve them, will be the main focus.

Presenter: Prof. RUBAKOV, Valery (INR Moscow)