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## Loop quantum gravity and the early universe

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Loop quantum gravity is, together with string theory, one of the major candidate approaches to quantize gravity. It provides a framework which allows for a non-perturbative and background-independent canonical quantization of general relativity. In this talk, I will briefly go through the basic conceptual groundings of the theory and switch to the latest developments associated with its implementation in the cosmological context. I will show that the Big Bang is replaced by a Big Bounce (therefore solving the initial singularity problem) and that inflation unavoidably occurs. Furthermore, the primordial tensor power spectrum should exhibit some characteristic features that could lead to experimental tests of this “Planck-scale” physics.

**Primary author:** Dr BARRAU, Aurelien (LPSC Laboratoire de Physique Subatomique et de Cosmologie (LPSC))

**Presenter:** Dr BARRAU, Aurelien (LPSC Laboratoire de Physique Subatomique et de Cosmologie (LPSC))

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