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Loop Quantum gravity in terms of spinors and harmonic oscillators

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Loop Quantum Gravity is an attempt to quantize general relativity. Its kinematical aspects are well understood and yield a description of space in terms of quanta. Spinorial tools provide a really nice geometrical picture of the classical phase space of Loop Gravity. Moving to the quantum level, spinors are simply quantized as harmonic oscillators. They are then the building blocks to define coherent states for Loop Quantum Gravity and to build spinfoam models which is a regularized path integral for general relativity. I will recall the main results of the spinorial formalism in the context of Loop Quantum Gravity and Spinfoam models and explain how it can be generalized to introduce a cosmological constant into the game.