Quantum Geometrodynamics of the Bianchi IX Cosmological Model RUSLAN VAULIN, Florida Atlantic University, ARKADY KHEYFETS, North Carolina State University, WARNER MILLER, Florida Atlantic University — The canonical quantum theory of gravity – Quantum Geometrodynamics (QG) is applied to the homogeneous Bianchi type IX cosmological model. As a result, the framework for the quantum theory of homogeneous cosmologies is developed. We show that the theory is internally consistent, and prove that it possesses the correct classical limit (the theory of general relativity). We show that, unlike the traditional approaches, QG leads to a well-defined Schrodinger equation for the wave- function of the universe that is inherently coupled to the expectation value of the constraint equations. This coupling to the constraints is responsible for the appearance of a coherent spacetime picture. Thus, the physical meaning of the constraints of the theory is quite different from Dirac's interpretation. In light of this distinctive feature of the theory, we readdress the question of the dark energy effects in the Bianchi IX cosmological model for highly non-classical quantum states.

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