The Initial Data in Conformal Cosmology

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Von Neumann's procedure is applied for quantization of General Relativity. We quantize the initial data of dynamical variables at the Planck epoch, where the Hubble parameter coincides with the Planck mass. These initial data are defined via the Fock simplex in the tangent Minkowskian space-time, the Dirac conformal interval. The Einstein cosmological principle is applied for the average of the spatial metric determinant logarithm over the spatial volume of the visible Universe. We derive the splitting of the general coordinate transformations into the diffeomorphisms (as the object of the second Noether theorem) and the initial data transformations (as objects of the first Noether theorem). Following von Neumann, we suppose that the vacuum state is a quantum ensemble. The vacuum state is degenerated with respect to quantum numbers of non-vacuum states with the distribution function that yields the Casimir effect in gravidynamics in analogy to the one in electrodynamics. The generation functional of the perturbation theory in gravidynamics is given as a solution of the quantum energy constraint. We discuss the region of applicability of gravidynamics and its possible predictions for explanation of the modern observational and experimental data.