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Revisiting the Hamiltonian formalism of the Ashtekar-Olmedo-Singh black hole model

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In this talk, I will present the main features of the solutions to a recently-derived set of dynamical equations that governs the effective dynamics of black holes in loop quantum cosmology which were obtained via a revision of the Hamiltonian calculation underlying the Ashtekar-Olmedo-Singh black hole model. I will analyze the possibility that certain quantum parameters are treated as Dirac observables and that the radial and angular sectors of phase space are not dynamically decoupled in general. I will show how to derive in this way the corresponding Hamiltonian equations. Finally, I will discuss the features of the resulting model, emphasizing how this apparently slight modification of the formalism might open a door to the alleviation of some of the criticisms that the Ashtekar-Olmedo-Singh model has received.

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