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Hysteresis in Loop Quantum Cosmology JOHN DUPUY, University of Georgia, PARAMPREET SINGH, Louisiana State University — Hysteresis, a common phenomena in electromagnetic materials in the context of condensed matter physics has also been shown to exist in cosmological, bouncing universe scenarios. Cosmological hysteresis is caused by an asymmetry in the equation of state during the expansion and contraction of the universe. We explore such instances in the context of effective loop quantum cosmology of the spatially closed model for both holonomy and connection quantizations. We find some novel features in the quasi-periodic structures resembling beats in the evolution of these universes for different potentials and in presence of a negative cosmological constant. We also compare results with previous investigations on similar models where such fine structures were not found.

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