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Non-singular AdS-dS transitions in a landscape scenario BRAJESH GUPT, PARAMPREET SINGH, Louisiana State Univ - Baton Rouge — In the multiverse scanario allowing eternal inflation, it is an important problem to understand transitions between different vacua, of which the ones from anti-deSitter to de-Sitter is forbidden in the classical theory. In this talk, we consider toy landscape potentials: a double well and a triple well potential allowing anti-deSitter and de-Sitter vacua, in the effective dynamics of loop quantum cosmology for the k= -1 FRW model. We show that due to the non-perturbative quantum gravity effects as understood in loop quantum cosmology, non-singular anti-deSitter to de-Sitter transitions are possible. In the future evolution, an anti-deSitter bubble universe does not encounter a big crunch singularity but undergoes a big bounce occurring at a scale determined by the underlying quantum geometry. These non-singular transitions provide a mechanism through which a probe or a "watcher," used to define a local measure, can safely evolve through the bounce and geodesics can be smoothly extended from anti-deSitter to de-Sitter vacua.

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