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**Numerical aspects of loop quantum cosmology** BRAJESH GUPT, Penn State University, University Park — A key feature of the singularity resolution in loop quantum cosmology (LQC) is the occurrence of the quantum bounce when the spacetime curvature becomes comparable to the Planck scale. The presence of quantum bounce greatly modifies the dynamics of the early universe and can have important implications for the observational signatures. Although the quantum bounce has been previously studied via numerical methods for initial conditions that correspond to large macroscopic universes at late times, a detailed study of the robustness of the quantum bounce for a generic class of initial condition has so far been missing due to severe computational challenges. I will talk about the numerical scheme, Chimera, which we have developed to tackle these computational challenges and some important results pertaining to the observable consequences of the loop quantum geometry.

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