## Sixteenth Marcel Grossmann Meeting



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## Bifurcations and Chaos in Ho\v{r}ava-Lifshitz Cosmology

Tuesday, 6 July 2021 10:45 (25 minutes)

The nature of generic spacelike singularities in general relativity is connected with first principles, notably Lorentzian causal structure, scale invariance and general covariance. To bring a new perspective on how these principles affect generic spacelike singularities, we consider the initial singularity in spatially homogeneous Bianchi type VIII and IX vacuum models in Ho\v{r}ava-Lifshitz gravity, where relativistic first principles are replaced with anisotropic scalings of Lifshitz type. Within this class of models, General Relativity is shown to be a bifurcation where chaos becomes generic. To describe the chaotic features of generic singularities in Ho\v{r}ava-Lifshitz cosmology, we introduce symbolic dynamics within Cantor sets and iterated function systems. See https://arxiv.org/abs/2012.07614

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