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Carroll Gravity, BKL Dynamics and Holography

Tuesday 3 September 2024 14:50 (20 minutes)

While Carroll geometry has exciting applications in the context of flat space holography, we can also consider ultra-local Carroll limits in gravity itself. At first, this may seem like an esoteric thing to do, compared to for example the non-relativistic expansion of gravity. However, Carroll limits in GR turn out to give remarkable simplifications. In this talk, I will connect these limits to BKL limits of gravity, which similarly describe similarly solvable yet rich chaotic dynamics in the vicinity of singularities. These limits have recently reappeared in the context of AdS/CFT, and I will reproduce some of those models from matter-coupled Carroll gravity. Finally, I will discuss some ongoing work on how Carroll limits of gravity can be used to go beyond existing near-singularity limits.

Link to publication (if applicable)

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