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Making massive spin-2 particles from gravity during and after inflation

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The phenomenon of cosmological gravitational particle production (CGPP) occurs during and after inflation as quantum fields “feel” the cosmological expansion are excited out of their ground state. CGPP is a compelling and minimal explanation for the origin of dark matter, which might only interact gravitationally, as well as other cosmological relics. In this talk, I’ll provide a general introduction to CGPP and then focus on our recent study of CGPP for massive spin-2 particles. I’ll briefly discuss the embedding of massive spin-2 particles into the framework of bigravity, present our results for the spectrum of gravitationally produced particles, and discuss a related by-product of our analysis: an FRW-generalization of the Higuchi bound (ghost-avoidance of massive gravity on dS backgrounds).

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