

# Clockwork Cosmology

*Tuesday 23 May 2023 12:15 (15 minutes)*

The clockwork mechanism has recently been proposed as a means to generate an exponentially suppressed coupling to matter from a fundamental theory of multiple interacting particles without any unnatural parameters. Applied in a gravitational setting within the framework of ghost-free multi-metric gravity, it provides us with a potential solution to the hierarchy problem, by generating a Planck scale coupling to matter from a TeV scale fundamental theory of many interacting gravitons.

In this talk I will aim to do two things. First, I will present an overview of how the clockwork mechanism works in general, alongside a means to construct multi-gravity potentials such that the fundamental theory will always exhibit this clockwork effect (ones also gets the matrix encoding the masses of the gravitons for free!). Second, since a gravitational clockwork necessarily deviates from general relativity, it may possess interesting cosmological implications. As a first look at this, I will discuss the background-level cosmological solutions.

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**Session Classification:** Scientific Talks