



# GRAVITY: CHALLENGES BEYOND GENERAL RELATIVITY

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## The impact of modifications to gravity on black holes and inhomogeneous cosmologies

*Thursday, 23 May 2024 15:00 (45 minutes)*

I will describe recent developments in numerical relativity that permit us to simulate non trivial scalar-tensor theories of gravity, which represent the next order corrections in an effective field theory approach. Whilst these techniques were developed mainly to aid the study of black holes spacetimes, they can also be applied to cosmology, in particular to the non linear dynamics of preheating and the initial condition problem for inflation (the question of whether inflation can start from strongly inhomogeneous initial conditions). I will give an overview of our work in this direction.

**Presenter:** CLOUGH, Katy