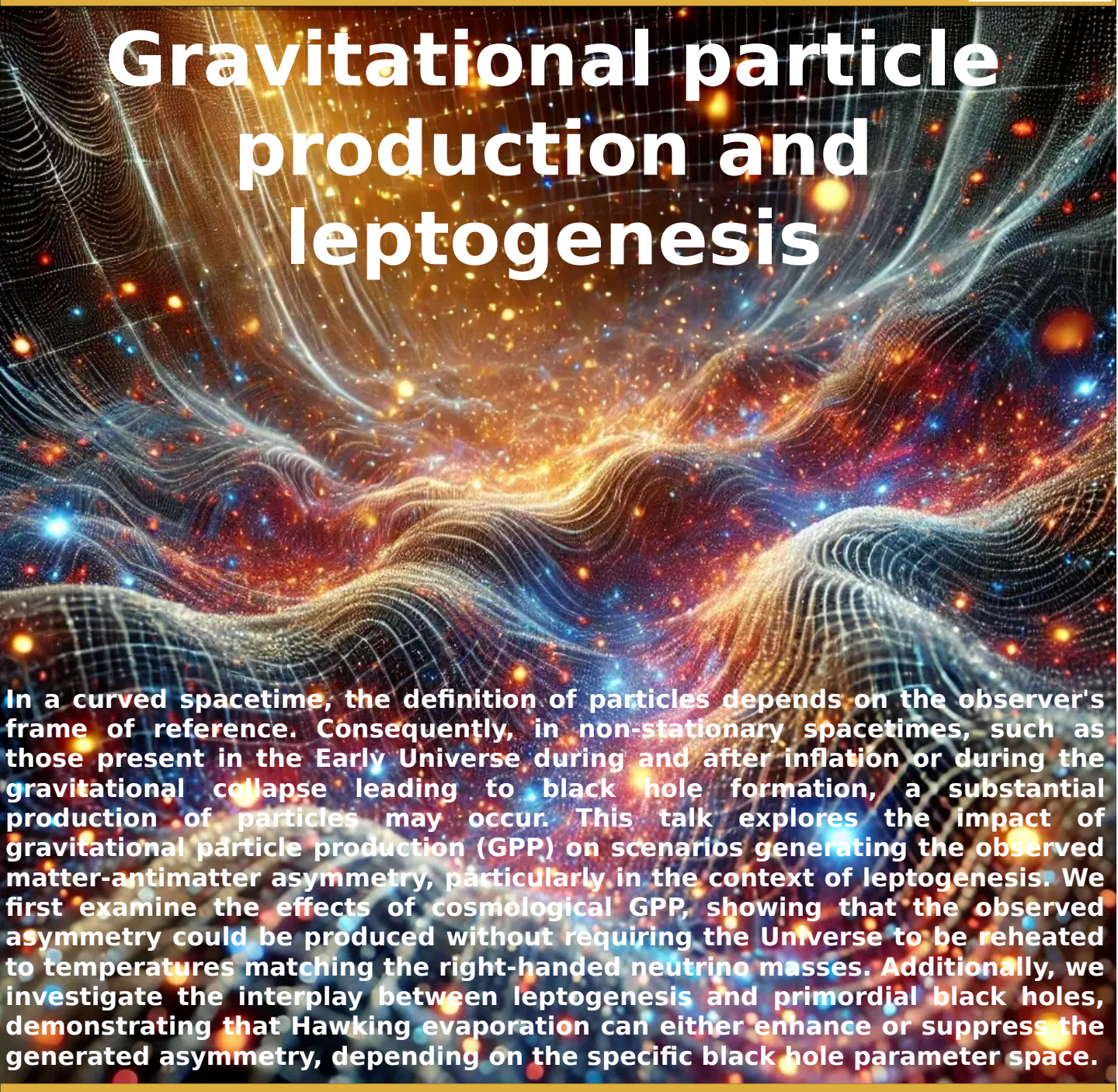
The DFT & CIAFF (DeCAF) UAM presents:

Dr. Yuber F. Perez-Gonzalez

(UAM and IFT)

talking about

Gravitational particle production and leptogenesis



In a curved spacetime, the definition of particles depends on the observer's frame of reference. Consequently, in non-stationary spacetimes, such as those present in the Early Universe during and after inflation or during the gravitational collapse leading to black hole formation, a substantial production of particles may occur. This talk explores the impact of gravitational particle production (GPP) on scenarios generating the observed matter-antimatter asymmetry, particularly in the context of leptogenesis. We first examine the effects of cosmological GPP, showing that the observed asymmetry could be produced without requiring the Universe to be reheated to temperatures matching the right-handed neutrino masses. Additionally, we investigate the interplay between leptogenesis and primordial black holes, demonstrating that Hawking evaporation can either enhance or suppress the generated asymmetry, depending on the specific black hole parameter space.

Wednesday October 8th 2025 @ 15:00

Modulo 15 Sala 201 UAM, and online at

https://ed-ac-uk.zoom.us/j/2055826516 (passcode: yD8S8qBU)