INSTITUTO DE ESTRUCTURA DE LA MATERIA

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Non Local Quantum Gravity: Theory and Implications

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In the quantum field theory framework, "Nonlocal Quantum gravity'' (with or without matter) turns out to be an excellent candidate for all fundamental interactions compatible with linear and nonlinear classical stability, perturbative unitarity, causality, and quantum finiteness.

In particular, the latter property implies that the theory is Weyl invariant at classical as well at quantum level. Therefore, nonlocal quantum gravity is a conformal invariant theory in the spontaneously broken phase of the Weyl symmetry.

In the first part of the presentation I will review the theory and its main properties, while the second part I will focus on some implications, namely: (i) singularity free black holes, (ii) resolution of the information loss problem, (iii) a new scenario for the early Universe in nonlocal conformal gravity as an alternative to Inflation, and (iv) a geometric origin of the galactic rotation curves based on conformal invariance as an alternative to dark matter.

Conference Hall (C/Serrano 121) - Free admission until full places

12:00H

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Thursday, 12th JAN 2023

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