

*DE MADRID AL COSMOS*

# A bridge between the microscopic structure of space-time and effective geometries: the crystal lessons

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**Fecha:**

Martes 10 de febrero  
10:00 h.

**Lugar:**

Sala de Seminarios FT-I  
Facultad de CC. Físicas, UCM

**Abstract:** A striking mathematical and physical resemblance exists between quantum gravity effective geometries arising from a hypothetical microstructure of space-time pervaded by creation and annihilation of wormholes (space-time foam), and the continuized version of crystalline structures. If the latter contains defects on its microstructure, the macroscopic effective description must be done in terms of a metric-affine geometry with nonmetricity and torsion. Using a crystal-motivated action in a simplified scenario, we find the presence of Wheeler's geons: self-consistent topologically non-trivial gravito-electromagnetic entities, representing the gravitational analog of point defects. What lessons can we extract from this analogy?

Ciclo de seminarios organizado conjuntamente por los grupos

- *Teorías Efectivas en Física Moderna* (UCM)
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