

De *Madrid* al *Cosmos*

Unruh-deWitt detectors: The Unruh effect and beyond

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Abstract: The Unruh deWitt model describes particle detectors. These are two-level quantum systems in motion along certain space-time trajectories and coupled to quantum fields. This model is able to describe the so called Unruh effect: accelerated observers interact with the vacuum of a quantum field as if they were immersed in a thermal bath with a temperature proportional to its acceleration. We will discuss some aspects of this effect, unraveling the notion of thermal equilibrium for quantum fields and making use of the so called KMS (Kubo-Martin-Schwinger) condition. Moreover, we will see that the Unruh effect is not the end of the story, because in many scenarios some peculiarities of particle detectors are decisive, for instance the switching process, or the introduction of more than one detector. We will discuss some recent discoveries as well. We will study how thermalization takes place, looking for a thermalization time scale. Finally we will discuss when the monotonic behavior with “temperature” can be lost, inquiring into the counterintuitive, not well-understood yet Anti-Unruh effect.

Jueves 26 de enero, 15:00 h.

Sala de Juntas

CFMAC-CSIC (Serrano, 113 Bis)

Ciclo de seminarios organizado conjuntamente por los grupos

- *Teorías Efectivas en Física Moderna* (UCM)
- *Gravitación y Cosmología* (IEM-CSIC)

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