



COLLOQUIUM
DEPARTAMENTO DE MATEMÁTICAS
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Boundary effects in Quantum Physics

Abstract:

The role of boundaries of quantum systems in new physical phenomena has been a focus of increasing activity in different areas of quantum physics. In general, the presence of boundaries enhances the quantum behavior of the system. Boundary effects are essential for the structure of the vacuum and the low energy behavior of the quantum field theories. They are responsible for the generation of Casimir force between neutral bodies which is the main macroscopic physical effect of quantum vacuum fluctuations. We shall show how the nature of this force can change from an attractive to a repulsive regime just by changing the boundary conditions. This is very interesting not only for technical applications to micro-mechanical devices and accurate analysis of micro-gravity effects but also for addressing more fundamental questions concerning dark energy and current cosmology.

Hora: 10:45

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