



Universidad de Valladolid



PhD Thesis Defense

“Extended Objects in Quantum Field Theory in Three Dimensions and Applications”

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Abstract: The main objective of this thesis is the study of the quantum fluctuations of scalar and fermionic fields in the vacuum state subject to boundary conditions and local interactions with other classical external fields. This study will be applied to the computation of several relevant parameters in three-dimensional extended structures in Quantum Field Theory. These systems have recently received increasing interest in material physics (in micro-electromechanical devices based on the Casimir effect or topological defects in meta materials and nanotubes) and in fundamental physics (quantum effects in modern cosmology and topological defects such as domain walls, monopoles and skyrmions).

16:00

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