



UNIVERSIDAD TECNICA
FEDERICO SANTA MARIA

Departamento de Física

Seminario Grupo de Física de Altas Energías

“Testing the far UV of the Standard Model with axions“
Dr. Mario Reig (University of Oxford, United Kingdom)

Abstract

In this talk I will discuss axion couplings to gauge bosons in 4-dimensional Grand Unified Theories and in (heterotic) String Theory. The topological nature of these couplings allows them to be matched from the UV to the IR, and the ratio of the anomaly with photons and gluons for any axion is fixed by unification. I will show that this implies that there is a single axion— the QCD axion— with an anomalous coupling to photons. Other light axion-like particles can couple to photons by mixing through the QCD axion portal, and necessarily lie to the right of the QCD line prediction in the mass-coupling plane. As a result, a discovery of an axion to the left of the QCD line can rule out simple GUTs and some heterotic string compactifications.

Miércoles 22 de Mayo de 2024 a las 14:30 horas de Chile.

[https://reuna.zoom.us/j/87161425888?
pwd=MWFZUFNQQRnl4MXo1QzFLdGpJblllZz09](https://reuna.zoom.us/j/87161425888?pwd=MWFZUFNQQRnl4MXo1QzFLdGpJblllZz09)

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