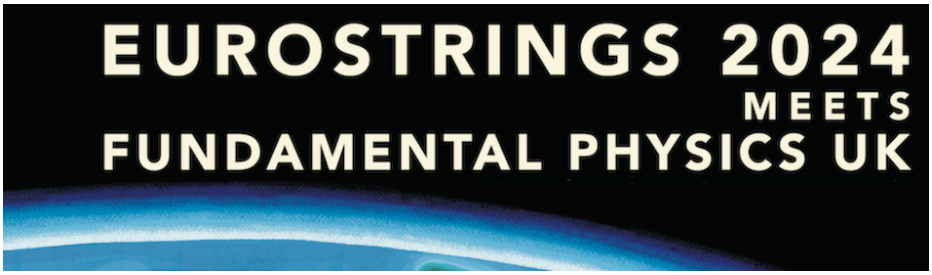

Contribution ID: **14** Type: **Talk in parallel session**

Asymptotic symmetries and logarithmic soft theorems

Wednesday 4 September 2024 11:00 (30 minutes)

In the last few years, a remarkable link has been established between the soft theorems and asymptotic symmetries of quantum field theories: soft theorems are Ward identities of the asymptotic symmetry generators. In particular, the tree-level subleading soft theorems are the Ward identities of the subleading asymptotic symmetries of the theory, for instance divergent gauge transformation in QED and superrotation in gravity. However, it is known that the subleading soft theorems receive quantum corrections with logarithmic dependence on the soft photon/graviton energy. It is therefore natural to ask how the quantum effects affect the classical (tree-level) symmetry interpretation. In this talk, we explore this question in the context of scalar QED and perturbative gravity. We show that the logarithmic soft theorems are the Ward identities of subleading asymptotic symmetries that arise from relaxed boundary conditions which take long-range interactions into account.

Link to publication (if applicable)

https://arxiv.org/abs/2403.13053

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