

# Probing CP-violation in photon-photon interactions

*Wednesday, 29 July 2020 17:00 (15 minutes)*

We are interested in probing CP Violation (CPV) in photon-photon interactions. Such interactions, effectively described by operators of the form  $FFF\tilde{F}$ , have yet to be directly constrained experimentally, and could point to new sources of CPV beyond the Standard Model (SM). One possible mediator of CP-violating photon-photon interactions could be the relaxion, which is theoretically motivated within a dynamical solution to the Hierarchy problem, and is expected to interact with the SM both through axion-like and scalar Higgs-portal couplings. We propose a method for isolating CP-violating non-linear electrodynamics using Superconducting Radiofrequency (SRF) cavities, thus eliminating the main SM background, related to the CP-conserving Euler-Heisenberg Lagrangian.

## Secondary track (number)

**Primary authors:** PEREZ, Gilad (Weizmann Institute); Ms SAVORAY, Inbar (Weizmann Institute of Science); Dr GORGHETTO, Marco (Weizmann Institute of Science); SOREQ, Yotam (CERN)

**Presenter:** Ms SAVORAY, Inbar (Weizmann Institute of Science)

**Session Classification:** Beyond the Standard Model

**Track Classification:** 03. Beyond the Standard Model