Contribution ID: **223** Type: **Talk**

Acceleration-induced radiation from a qudit particle detector model

Tuesday 24 June 2025 16:45 (15 minutes)

We nonperturbatively examine the emission rate of acceleration-induced radiation from a uniformly accelerated gapless qudit-type Unruh-DeWitt detector. We find that the emission rate can be written as Larmor's formula multiplied by a factor that depends on the detector's initial state. In particular, certain initial states of integer-spin detectors do not produce radiation. Although the appearance of Larmor's formula may suggest a classical phenomenon, we argue that the resulting radiation is fundamentally distinct from that of structureless classical sources, as it evolves into a multimode coherent state correlated with the detector's internal degree of freedom. Thus, gapless detectors cannot be treated as structureless sources, as previously proposed.

Author: GALLOCK-YOSHIMURA, Kensuke (The University of Tokyo)

Presenter: GALLOCK-YOSHIMURA, Kensuke (The University of Tokyo)

Session Classification: Tuesday Parallel Session F