Contribution ID: **402**   Type: **Talk in the parallel session**

New partial resummation of the QED effective action

Friday, 9 July 2021 07:45 (15 minutes)

The goal of this talk is to present a conjecture which states that the proper-time series expansion of the one-loop effective Lagrangian of quantum electrodynamics can be partially summed in all terms containing the field-strength invariants $\mathcal{F} = \frac{1}{4} F_{\mu\nu} F^{\mu\nu}(x)$, $\mathcal{G} = \frac{1}{4} \tilde{F}_{\mu\nu} F^{\mu\nu}(x)$, including those that also have derivatives of the electromagnetic field strength. This summation is encapsulated in a factor with the same form as the (spacetime-dependent) Heisenberg-Euler Lagrangian density. I will then discuss some implications and a possible extension in presence of gravity. This talk is based on the article: Phys.Rev. **D** 103 (2021) 8, L081702.

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