

## Spanish and Portuguese Relativity Meeting



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# Schwinger pair production in de Sitter: Regularizing negative conductivities

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Within the context of particle interactions during inflation, both from an inflationary but also dark sector model building perspective there is great interest in analyzing the effects of particle creation by electromagnetic fields in a de-Sitter background. Notably in the current literature, there is an open discussion arising from the appearance of negative conductivities when the masses of the charged particles are smaller than the Hubble rate. We address how to properly regularize and renormalize the current of charged scalar or fermions using, dimensional regularization, Pauli Villars and a “running” adiabatic subtraction regularization. We seem to correct the anomalous predictions in previous works.

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