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HIGH ENERGY PHYSICS COLLOQUIA

21 ottobre 2019 · ore 15:00 · aula Consiglio

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CLASSICAL ELECTRODYNAMICS ON SNYDER SPACE

Abstract

A formulation of classical electrodynamics on an energy-momentum background of constant, non-zero curvature is given. The procedure consists of taking the formulation of standard electrodynamics in the energy-momentum representation, and promoting the energy-momentum vector to belong to a constant (non-zero) curvature space. In particular, special emphasis is given to the definition of integration measure and generalized Dirac's delta function. Finally, simple physical problems as plane waves (solutions outside sources) and point charges are discussed in this context, where the self-energy of a point charge is shown to be finite.

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