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Electromagnetic Lagrangian on a causal set that resides on timelike edges alone: a quasi-local model. (English) Zbl 07489137

Summary: The goal of this paper is to introduce the electromagnetic field and its Lagrangian into a causal set. The electromagnetic field will be defined as a real valued function on the set of timelike-separated pairs of points.

MSC:
83C10 Equations of motion in general relativity and gravitational theory
53C50 Global differential geometry of Lorentz manifolds, manifolds with indefinite metrics
54A10 Several topologies on one set (change of topology, comparison of topologies, lattices of topologies)
06B35 Continuous lattices and posets, applications
83C05 Einstein’s equations (general structure, canonical formalism, Cauchy problems)

Keywords:
causal set; electromagnetism; quantum gravity; Lagrangian; action; quantum field theory; discrete field theory; discretization; discrete theories

Full Text: DOI

References:

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