

High Energy Physics - Theory

Noncommutative gauge theory using covariant star product defined between Lie valued differential forms

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We develop an internal gauge theory using a covariant star product. The space-time is a symplectic manifold endowed only with torsion but no curvature. It is shown that, in order to assure the restrictions imposed by the associativity property of the star product, the torsion of the space-time has to be covariant constant. An illustrative example is given and it is concluded that in this case the conditions necessary to define a covariant star product on a symplectic manifold completely determine its connection.

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