

The geometrical nature of the $2+1$ -dimensional Higgs model

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Abstract

It has been known that the Higgs model in the $2+1$ -dimensional has a non-local geometry which is consistent with the experimental results of the Higgs experiments. In this letter we prove that the Higgs model in the $2+1$ -dimensional has an algebraic structure of Geometrical Leibnitz type and that the Higgs field theory is a Geometrical Leibnitz field theory. In the case where the Higgs field theory is a Geometric Leibnitz field theory, the Higgs model is constructed, and we show that it obeys the Higgs formula. In particular, we compute the $2+1$ -dimensional Higgs model in the $2+1$ -dimensional Geometrical Leibnitz field theory and it is shown to be a Geometric Leibnitz field theory.