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Kitamura – Tree-level Unitarity and Renormalizability in Lifshitz Scalar Theory

Monday 22 February 2016 19:20 (20 minutes)

I studied the equivalence between tree unitarity and renormalizability in Lifshitz scalar theory. Tree-level unitarity and renormalizability are believed to be equivalent in field theories. No counter-example is known in relativistic field theories. However, the question whether the equivalence holds true for more generic field theories, such as non-relativistic theories is obscure. In my study, I discussed the equivalence between tree-level unitarity and renormalizability and showed that the equivalence holds true in Lifshitz (non-relativistic) scalar field theory. It can be inferred that tree-level unitarity is useful to investigate renormalizability in a large class field theories, such as Horava-Lifshitz gravity.

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