



MAFIA - the seminar you can't refuse

Goldstone's theorem and the Higgs mechanism in non-Abelian non-Hermitian quantum field theories

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Abstract: We discuss how the Goldstone theorem and the Higgs mechanism in Abelian and non-Abelian quantum field theories can be extended to a non-Hermitian setting. For this purpose we study the interplay between spontaneously breaking of global continuous and discrete antilinear symmetries. These symmetries define different types of regimes of which the physical regions are bounded by exceptional points of different types in different ways. There exist special points in parameter space for which massless bosons may occur already before breaking the global symmetry. However, when the global symmetry is broken at these points they can no longer be distinguished from genuine Goldstone bosons. At these points not only the gauge mass vanishes, but also the Higgs mechanism breaks down.