

Domain Walls in Extended Higgs Sectors: Electric Charge Violation and Electroweak Symmetry Restoration

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Extended Higgs sectors such as the 2HDM and N2HDM provide new discrete symmetries, which, upon spontaneous symmetry breaking, can lead to the formation of topological defects called domain walls. In this talk, I discuss some consequences of these domain walls on the early universe, such as electroweak symmetry restoration necessary for Electroweak baryogenesis via domain walls, as well as the possibility of having electric charge breaking domain walls in the 2HDM, which lead to exotic effects such as the transformation of electrons into sterile neutrinos. This provides a new mechanism for the production of sterile neutrinos as dark matter.

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