

# Electroweak phase transition in a vector dark matter scenario

*Monday 14 April 2025 15:00 (30 minutes)*

This study explores the parameter space of a minimal extension of the Standard Model with a non-abelian  $SU(2)$  group, in which the gauge bosons are stable and acquire mass through a mechanism of spontaneous symmetry breaking involving a new scalar doublet which interacts with the Higgs boson through a quartic coupling. The exploration aims to assess whether it is possible to obtain a first-order phase transition while ensuring that the gauge bosons are viable dark matter candidates. Theoretical, astrophysical and collider bounds are considered. The results are then tested against the sensitivity of future experiments for the detection of gravitational wave signals.

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