

Abstract Submitted
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Multiscale renormalization group methods for effective potentials with multiple scalar fields¹ ZHI-WEI WANG, TOM STEELE, Univ of Saskatchewan, GERRY MCKEON, Western University and Algoma University — Conformally symmetric scalar extensions of the Standard Model are particularly appealing to reveal the underlying mechanism for electroweak symmetry breaking and to provide dark matter candidates. The Gildener & Weinberg (GW) method is widely used in these models, but is limited to weakly coupled theories. In this talk, multi-scale renormalization group (RG) methods are reviewed and applied to the analysis of the effective potential for radiative symmetry breaking with multiple scalar fields, allowing an extension of the GW method beyond the weak coupling limit. A model containing two interacting real scalar fields is used as an example to illustrate these multi-scale RG methods. Extensions of these multi-scale methods for effective potentials in models containing multiple scalars with $O(M) \times O(N)$ symmetry will also be discussed.

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