

Avoiding Imaginary Masses: Stabilizing the Chiral Phase in the Linear Sigma Model Beyond Mean-Field

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The mean-field approximation to the Linear Sigma Model fails qualitatively in the chirally restored phase at high temperature, baryon density, or isospin asymmetry, predicting tachyonic meson masses that signal a instability of the trivial vacuum. A longstanding question is whether this pathology persists in a more complete treatment or is merely an artifact of the crude approximation.

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