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Continuum limit of two-dimensional multiflavor scalar gauge theories

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We address the interplay between local and global symmetries by analyzing the continuum limit of two-dimensional multicomponent scalar lattice gauge theories, endowed by non-abelian local and global invariance. These theories are asymptotically free. By exploiting Monte Carlo simulations and Finite-Size Scaling techniques, we thus provide numerical results concerning the universal behavior of such models in this critical regime. Our results support the conjecture that two-dimensional multiflavor scalar fields have the same continuum limit as the sigma models associated with symmetric spaces that have the same global symmetry as the lattice model.

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