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Finite Size Scaling of the Higgs-Yukawa Model near the Gaussian Fixed Point

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We study the scaling property of Higgs-Yukawa models. Using the technique of Finite-Size Scaling, we are able to derive formulae to describe the behaviour of the observables near the Gaussian fixed point. The renormalisation procedure is discussed in this talk. A feasibility study of our strategy is performed for pure scalar theory. In addition, we test the formulae with lattice data obtained in the weak-coupling regime for the Higgs-Yukawa model. These formulae can be used to investigate the universality classes of the observed phase transitions, and thus play an essential role in further investigations of Higgs-Yukawa models.

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