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two-dimensional phase structure of SU(2) gauge-Higgs model

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We study numerically the phase structure in two dimensions with SU(2) gauge-Higgs coupling.

We calculate the static potential from Wilson Loop, W propagator and the order parameter related to a transition between the confinement-like phase and Higgs-like phase. Our results suggest that there is a confinement-like phase and Higgs-like phase, even in two dimensions.

In the confinement-like phase, the static potential rises linearly with string breaking at large distances, while in the Higgs-like phase, it is of Yukawa

type, consistent with a Higgs-type mechanism. The correlation length obtained from the W propagator has a maximum between these phase.

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