

Variational approach in quantum field theory.

We develop a variational approach to study a two-dimensional non-integrable quantum field theories through the lenses of integrable ones. We focus on the ϕ^4 Landau- Ginzburg theory and compare it with the integrable Sinh-Gordon. We employ exact Vacuum Expectation Values and Form Factors of local operators of the Sinh-Gordon model for getting the best variational estimates of several quantities of the ϕ^4 theory, such as the ground state energy on a finite volume or the physical mass as function of the coupling constant.

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