

Connected vacua of heterotic orbifolds

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We study the global structure of vacua of heterotic strings compactified on orbifolds T^4/Z_N in the presence of heterotic 5-branes. Gauge symmetry breaking associated with orbifold is described by instantons in the field theory. Phase transition between small instantons and heterotic 5-branes provides top-down, stringy account to the spectrum and modular invariance condition. Also it takes us from one vacuum to another by emitting and absorbing instantons. This means that many vacua with different gauge theory are in fact connected and are inherited from perturbative vacua. It follows that there are also transitions among twisted fields, heterotic 5-branes and instantons.

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