On the paper "Dynamical Symmetry Restoration and Constraints on Masses and Coupling Constants in Gauge Theories" by A. D. Linde JETP Lett. 23 (1976) 64-67

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In 1973 S. Coleman and E. Weinberg investigated the effect of radiative corrections on the possibility of spontaneous symmetry breaking in seminal paper [1]. A. D. Linde studied some physical consequences of spontaneous breaking of gauge symmetry at one-loop level. The author considered a complex scalar field minimally coupled to U(1) gauge field with potential

$V = \lambda(\varphi^*\varphi)^2 - \mu^2\varphi^*\varphi$. Renormalization conditions for effective potential fixed vacuum expectation value and mass of excitataions to its classical values. The effective potential has the second minimum at $< \varphi >= 0$. The condition $V_{eff}(\sigma) < V_{eff}(0)$ imposed a constraint on self-interaction coupling :

$$\lambda > \frac{3}{32\pi^2}g^4$$

Even if classical value of λ is very small, due to one-loop correction it becomes equal to $\lambda_{eff} = \lambda + \frac{1}{2\pi^2}g^4$.

These inequalities for coupling constant were rewritten in terms of masses of scalar and vector particles. The lower bound on the Higgs mass was estimated as $m_H > 5GeV$. This approach was generalized soon to non-abelian case by S. Weinberg [2]. In this case the lower bound on Higgs mass is $m_H > 7.4GeV$ taking into account contribution of W, Z-bosons to effective potential. This lower bound is known as Weinberg-Linde value. It is worth to mention that fermions propagating in the loop diminish WL value (due to the opposite statistics). t-quark contribution makes the effective potential unbounded from below. So one loop approximation is not valid. At two loops [4, 5] nonsymmetric vacuum approaches the metastability boundary $V_{eff}(\sigma) \simeq V_{eff}(0)$ at $m_H \simeq 126GeV$, $m_t \simeq 174GeV$ [6].

References

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