

# Literature about Conformal Symmetry and Radiative Symmetry Breaking

- Applied Conformal Field Theory.  
*Paul Ginsparg*  
**hep-th/9108028**

Introduction to conformal symmetry and field theory (Les Houches Lectures)

- Radiative Corrections at the Origin of SSB.  
*Sidney Coleman, Erick Weinberg*  
**Phys.Rev.D 7 (1973) 1888**

Radiative Symmetry breaking in scalar electrodynamics; dimensional transmutation; renormalization group improvement of the effective potential.

- Symmetry breaking and scalar bosons.  
*Eldad Gildener, Steven Weinberg*  
**Phys.Rev.D. 13 (1976) 3333**

Radiative Symmetry breaking with multiple scalar fields

- Electroweak Higgs as a PGB of broken scale-invariance.  
*Robert Foot, Archil Kobakhidze, Raymond R. Volkas*  
**arXiv:0704.1165**

Discusses a scale-invariant Higgs sector extended by one (N) additional singlet fields. The method of Gildener and Weinberg is used to calculate the radiatively induced mass of the scalar which is identified with the physical Higgs. Additionally, there is a heavier scalar in the spectrum which can mix with the doublet. Bounds from electroweak precision tests and RG-evolution are discussed. A generic feature is a Landau pole around 10 – 100TeV.

- Conformal Symmetry and the Standard Model.  
*Krzysztof Meissner, Hermann Nicolai*  
**Phys.Lett.B648:312-317,2007; hep-th/0612165**

Similar Higgs model as above. Special emphasis is on how to shift the Landau pole beyond the Planck scale.

- Shadow Higgs from a scale-invariant hidden  $U(1)(s)$  model.  
*We-Fu Chang , John Ng, Jackson Wu*  
**Phys.Rev.D75:115016,2007; hep-ph/0701254**

Also a similar Higgs model as above. The additional singlet is charged under a hidden  $U(1)$ . However, here the heavier scalar is identified as the physical Higgs boson. Constraints from LEP etc. on the mixing of the additional light scalar with the doublet are discussed.

- Neutrino mass in radiatively-broken scale-invariant models.  
*Robert Foot, Archil Kobakhidze, Kristian McDonald, Raymond Volkas*  
**arXiv:0706.1829**
- A Solution to the hierarchy problem from an almost decoupled hidden sector within a classically scale invariant theory.  
*Robert Foot, Archil Kobakhidze, Kristian McDonald, Raymond Volkas*  
**arXiv:0709.2750**
- Light scalar at LHC: The Higgs or the dilaton?  
*Walter Goldberger, Benjamin Grinstein, Witold Skiba*  
**arXiv:0708.1463**