Is Radiative Electroweak Symmetry Breaking Consistent with a 125 GeV Higgs Mass?[1] ZHI-WEI WANG, TOM STEELE, University of Saskatchewan — The mechanism of radiative electroweak symmetry breaking occurs through loop corrections, and unlike conventional symmetry breaking where the Higgs mass is a parameter, the radiatively-generated Higgs mass is dynamically predicted. Padé approximations and an averaging method are developed to extend the Higgs mass predictions in radiative electroweak symmetry breaking from five- to nine-loop order in the scalar sector of the Standard Model, resulting in an upper bound on the Higgs mass of 141 GeV. The mass predictions are well-described by a geometric series behaviour, converging to an asymptotic Higgs mass of 125 GeV consistent with the recent ATLAS/CMS observations.

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