

Author(s): Ferreira, PM (Ferreira, P. M.); Haber, HE (Haber, Howard E.); Silva, JP (Silva, Joao P.)

Title: Basis invariant conditions for supersymmetry in the two-Higgs-doublet model

Source: Physical Review D, 82 (1): Art. No. 016001 JUL 9 2010

Language: English

Document Type: Article

KeyWords Plus: Symmetric Gauge-Theories; Charged Higgs Bosons; CP Violation ; Doublets; Renormalization; Breaking; Sector

Abstract: The minimal supersymmetric standard model involves a rather restrictive Higgs potential with two Higgs fields. Recently, the full set of classes of symmetries allowed in the most general two-Higgs-doublet model was identified; these classes do not include the supersymmetric limit as a particular class. Thus, a physically meaningful definition of the supersymmetric limit must involve the interaction of the Higgs sector with other sectors of the theory. Here we show how one can construct basis invariant probes of supersymmetry involving both the Higgs sector and the gaugino-Higgsino-Higgs interactions.

Addresses: [Ferreira, P. M.; Silva, Joao P.] Inst Super Engrn Lisboa, P-1900 Lisbon, Portugal; [Ferreira, P. M.] Univ Lisbon, Fac Ciencias, Ctr Fis Teor & Computac, P-1649003 Lisbon, Portugal; [Haber, Howard E.] Univ Calif Santa Cruz, Santa Cruz Inst Particle Phys, Santa Cruz, CA 95064 USA; [Silva, Joao P.] Inst Super Tecn, Ctr Fis Teor Particulas, P-1049001 Lisbon, Portugal

Reprint Address: Ferreira, PM, Inst Super Engrn Lisboa, Rua Conselheiro Emidio Navarro, P-1900 Lisbon, Portugal.

Publisher: AMER PHYSICAL SOC

Publisher Address: ONE PHYSICS ELLIPSE, COLLEGE PK, MD 20740-3844 USA

ISSN: 1550-7998

Article Number: 016001

DOI: 10.1103/PhysRevD.82.016001

29-char Source Abbrev.: PHYS REV D

ISI Document Delivery No.: 622UI