

Title: A soft origin for CKM-type CP violation

Author(s): Ferreira, P. M.^{1,2}; Lavoura, L.³; Silva, João P.^{1,3}

Source: Physics Letters B

Volume: 704 **Issue:** 3 **Pages:** 179-188 **DOI:** 10.1016/j.physletb.2011.08.071 **Published:** Oct 13 2011

Document Type: Article

Language: English

Abstract: We present a two-Higgs-doublet model, with a $Z(3)$ symmetry, in which CP violation originates solely in a soft (dimension-2) coupling in the scalar potential, and reveals itself solely in the CKM (quark mixing) matrix. In particular, in the mass basis the Yukawa interactions of the neutral scalars are all real. The model has only eleven parameters to fit the six quark masses and the four independent CKM-matrix observables. We find regions of parameter space in which the flavour-changing neutral couplings are so suppressed that they allow the scalars to be no heavier than a few hundred GeV. (C) 2011 Elsevier B.V. All rights reserved.

KeyWords Plus: Model; Search; Mass; Lep

Reprint Address: Ferreira, PM (reprint author), Inst Super Engn Lisboa, P-1959007 Lisbon, Portugal.

Addresses:

1. Inst Super Engn Lisboa, P-1959007 Lisbon, Portugal
2. Univ Lisbon, Ctr Fis Teor & Computac, P-1649003 Lisbon, Portugal
3. Inst Super Tecn, Ctr Fis Teor Partículas, P-1049001 Lisbon, Portugal

E-mail Address: ferreira@cii.fc.ul.pt; balio@cftp.ist.utl.pt; jpsilva@cftp.ist.utl.pt

Publisher: Elsevier Science BV

Publisher Address: PO Box 211, 1000 AE Amsterdam, Netherlands

ISSN: 0370-2693

Citation: FERREIRA, P. M.; LAVOURA, L.; SILVA, João P. - A soft origin for CKM-type CP violation. Physics Letters B. ISSN 0370-2693. Vol. 704, n.º 3 (2011) p. 179-188.