2003 Vol.40 No.2 pp.171-182 DOI:

The Effects from the Complex Parameters on $t \to ch^0$ Within the Minimal Supersymmetric Standard Model

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(Received: 2003-1-20; Revised:)

Abstract: We investigate the effects from complex parameters on the branching ratio (BR) of the flavor changing rare decay $t \to ch^0$ contributed by the electroweak interactions in the framework of the minimal supersymmetric standard model with complex parameters. We study the dependence of the BR on the possible relevant additional parameters which could be the original sources inducing CP-violation, i.e., the complex phase angles φ_μ and φ_{A_b} in squark and chargino sectors and δ_{13} appearing in Cabibbo-Kobayashi-Maskawa matrix. We find that these parameters influence the BR obviously and the effects induced by φ_μ and φ_{A_b} are much larger than by δ_{13}. With the different chosen values of the complex parameters, the BR is in the range between 10^{-10} and 10^{-8}, depending mainly on the phase angles of the higgsino mass parameter μ and the trilinear coupling A_b.

PACS: 11.30.Hv, 12.60.Jv, 14.65.Ha, 14.80.Cp
Key words: flavor changing rare decay, minimal supersymmetric standard model, complex supersymmetric parameters

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