

Analysis of the $B \rightarrow \pi \ell^+ \ell^-$ decay in the standard model with fourth generation

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ABSTRACT: We investigate the influence of the fourth generation quarks on the branching ratio and the CP-asymmetry in $B \rightarrow \pi \ell^+ \ell^-$ decay. Taking the $|V_{t'd}V_{t'b}| \sim 0.001$ with phase about 10° , which is consistent with the $\sin 2\phi_1$ of the CKM and the B_d mixing parameter Δm_{B_d} , we obtain that for both (μ, τ) channels the branching ratio, the magnitude of CP-asymmetry and lepton polarization depict strong dependency on the 4th generation quarks mass and mixing parameters. These results can serve as a good tool to search for new physics effects, precisely, to search for the fourth generation quarks (t' , b') via its indirect manifestations in loop diagrams.

KEYWORDS: Beyond Standard Model, B-Physics.