Contribution ID: **135** Type: **Talk**

Study of New Physics in $B_q^0 - \bar{B}_q^0$ Mixing:Challenges, Prospects and Implications for Leptonic Decays

Wednesday, November 9, 2022 5:00 PM (15 minutes)

The phenomenon of $B_q^0 - \bar{B}_q^0$ mixing ($q = d, s$) provides a sensitive probe for physics beyond the Standard Model. We have a careful look at the analyses of the determination of the Unitarity Triangle apex, which is needed for the Standard Model predictions of the B_q mixing parameters, and we explore how much space for New Physics is left through the current data. We study the impact of tensions between inclusive and exclusive determinations of the CKM matrix elements $|V_{ub}|$ and $|V_{cb}|$ and we focus on the γ angle extraction. We present various future scenarios and we discuss the application of these results for leptonic rare B decays, which allows us to minimise the CKM parameters impact in the New Physics searches. Performing future projections, we explore and illustrate the impact of increased precision on the key input measurements. It will be exciting to see how more precise data in the future high-precision era of flavour physics can lead to a much sharper picture.

Author: MALAMI, Eleftheria (Siegen University)

Co-authors: DE BRUYN, Kristof (Nikhef & University of Groningen); FLEISCHER, Robert (Nikhef & Vrije Universiteit Amsterdam); VAN VLIET, Philine (DESY)

Presenter: MALAMI, Eleftheria (Siegen University)

Session Classification: Quark Flavour

Track Classification: All