Old Dominion University
Department of Physics

Colloquium

Thursday, March 30, 2023

"Precision Test of the First-row CKM Unitarity"

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Abstract: The failure of the Standard Model (SM) of particle physics to account for many important observed phenomena in cosmology calls for the search of physics beyond the Standard Model (BSM), where experiments at the precision frontier play a significant role. An important example is the test of the first-row Cabibbo-Kobayashi-Maskawa (CKM) matrix unitarity through high-precision measurements of the matrix elements Vud and Vus from charged weak decay processes.

Recent years have seen tremendous progress in the understanding of various SM theory inputs which affect the extraction of Vud and Vus. I will review these progress and show how they, together with improved experimental measurements, lead to the so-called Cabibbo-angle anomaly (CAA) which now provides one of the most promising avenues for the search of BSM physics. Future improvements needed for a confirmed discovery of new physics will also be described

Presentation: OCNPS 142 @ 3:00 pm
Refreshments: OCNPS Atrium @ 2:30 pm

All interested persons are cordially invited to attend.