



Contribution ID: 228

Type: Poster

Improved Standard-Model Prediction for $\pi^0 \rightarrow \gamma^+ \gamma^-$ and Constraints on BSM Physics

Tuesday 18 October 2022 17:07 (1 minute)

We present the recent work on an improved Standard-Model prediction for the rare decay $\pi^0 \rightarrow \gamma^+ \gamma^-$, which plays a crucial role in the test of the long-distance dynamics of the strong interaction. The reduced amplitude of the decay is determined by the pion transition form factor for $\pi^0 \rightarrow \gamma^* \gamma^*$, for which we employ a dispersive representation that incorporates both time-like and space-like data as well as short-distance constraints. The resulting SM branching fraction, $\text{Br}[\pi^0 \rightarrow \gamma^+ \gamma^-] = 6.25(3) \times 10^{-8}$, reveals a ten-fold improvement in precision over experiment and sharpens constraints on physics beyond the Standard Model.

Primary author: HOID, Bai-Long

Co-authors: HOFERICHTER, Martin (University of Bern); KUBIS, Bastian; LÜDTKE, Jan

Presenter: HOID, Bai-Long

Session Classification: BBQ - Drinks & Posters