Search for lepton flavor-violating decay modes $B^0 \to K^0_S \tau^\pm \ell^\mp$ $(\ell = \mu, e)$ with hadronic B-tagging at Belle and Belle II (Supplemental material)

Figure 1 presents the selection efficiencies for the four signal modes: $B^0 \to K^0_S \tau^+ \mu^-$, $B^0 \to K^0_S \tau^- \mu^+$, $B^0 \to K^0_S \tau^+ e^-$, and $B^0 \to K^0_S \tau^- e^+$. The efficiency is shown as a function of two kinematic variables, $M^2_{\tau\ell}$ and $M^2_{K^0_S\ell}$, where the 4-momentum of the τ lepton is inferred using the $B_{\rm tag}$ reconstruction. These distributions can be utilized to reinterpret the results for different models and kinematics, extending beyond the uniform phase space distribution assumed in the signal simulation and upper limit estimation.

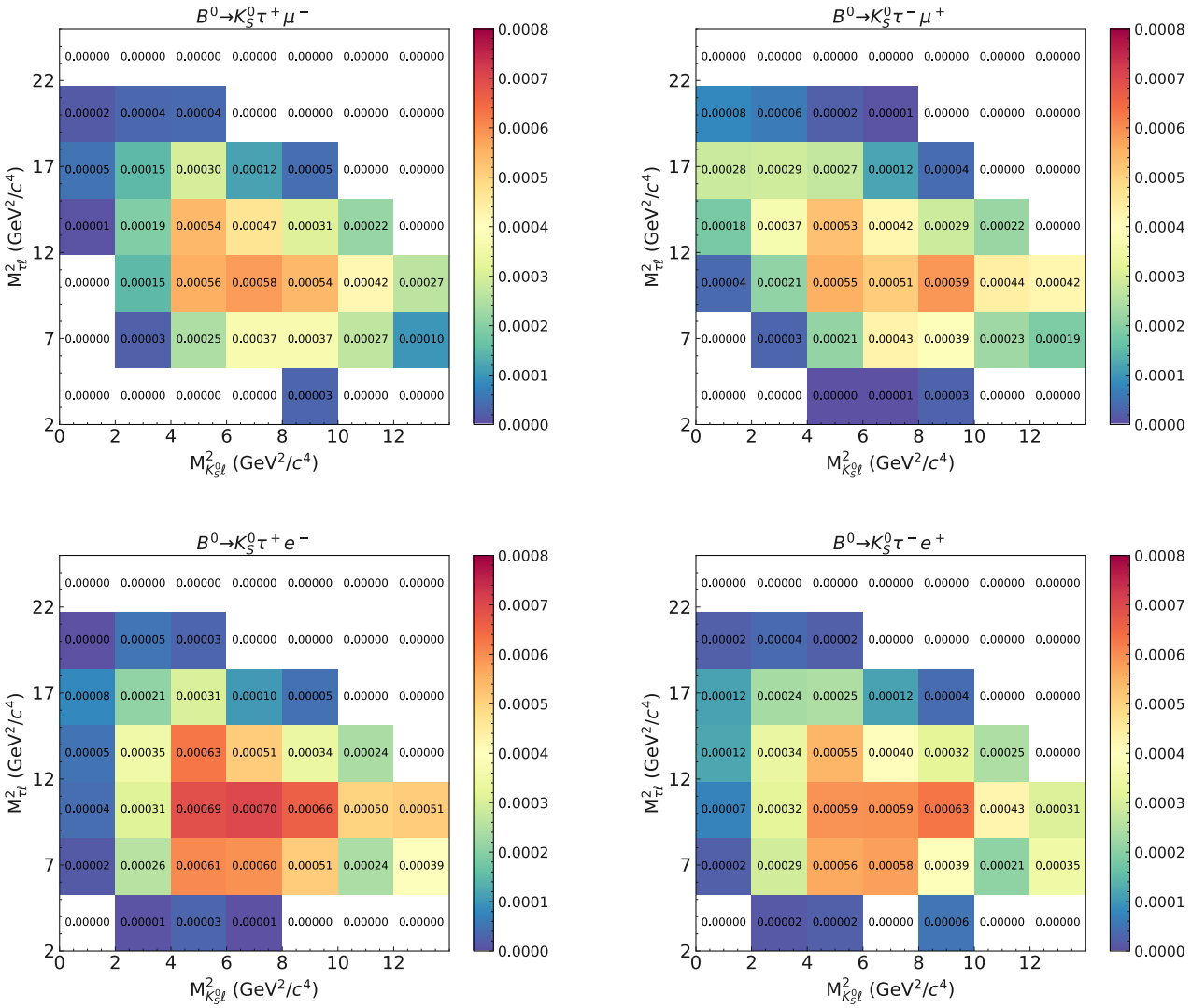

FIG. 1: Selection efficiency as a function of the kinematic variables $M^2(\tau\ell)$ and $M^2(K^0_S\ell)$. Tabulated values are available at https://www.hepdata.net/record/159467.