

## Feasibility study of measuring $b \rightarrow s \gamma$ photon polarization in $D^0 \rightarrow K_1(1270)^- e^+ \nu_e$ at STCF

*Wednesday, 18 August 2021 16:10 (15 minutes)*

We report a sensitive study of measuring  $b \rightarrow s \gamma$  photon polarisation in  $D^0 \rightarrow K_1(1270)^- e^+ \nu_e$  with an integrated luminosity of  $L = 1 \text{ ab}^{-1}$  at a center-of-mass energy of 3.773 GeV at future Super Tau Charm Facility. More than 61,000 signals of  $D^0 \rightarrow K_1(1270)^- e^+ \nu_e$  are expected. Based on a fast simulation software package, the statistical sensitivity for the ratio of up-down asymmetry is estimated to be  $1.5 \times 10^{-2}$  by performing a two-dimensional angular analysis in  $D^0 \rightarrow K_1(1270)^- e^+ \nu_e$ . Combining with measurements of up-down asymmetry in  $B \rightarrow K_1 \gamma$ , the photon polarisation in  $b \rightarrow s \gamma$  can be determined model-independently.

**Primary author:** 范, 玉兰 (Wuhan University)

**Presenter:** 范, 玉兰 (Wuhan University)

**Session Classification:** Parallel Session II: Hadron and Flavor Physics

**Track Classification:** 2. 强子物理与味物理