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Results and Prospects of Radiative and Electroweak Penguin Decays at Belle II

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In the recent years, several measurements of B-decays with flavor changing neutral currents, i.e. $b \to s$ transitions hint at deviations from the Standard Model (SM) predictions. These decays are forbidden at tree-level in the SM and can only proceed via suppressed loop level or box diagrams. Rare decays of B mesons are an ideal probe to search for phenomena beyond the SM, since contributions from new particles can affect the decays on the same level as SM particles.

The Belle II experiment is a substantial upgrade of the Belle detector and operates at the SuperKEKB energy-asymmetric e^+e^- collider. Radiative $b \to s\gamma$ decays is already been observed and inclusive photon spectra is also obtained with only a small dataset of Belle II. Early measurements related to the electro-weak penguin $b \to s\ell\ell$ and $b \to s\nu\bar{\nu}$ decays has also been performed. We will discuss the results obtained with the current dataset along with the prospects for the searches of these radiative and electroweak penguin decays with the expected 50 ab^{-1} full dataset of Belle II.

Primary author: SATO, Yo (KEK IPNS)

Presenter: SATO, Yo (KEK IPNS)

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