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Light dark forces at flavour factories

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SuperB experiment could represent an ideal environment to test a new U(1) symmetry related to light dark forces candidates.

A promising discovery channel is represented by the resonant production of a boson U, followed by its decay into lepton pairs.

Beyond approximations adopted in the literature, an exact tree level calculation of the radiative processes $e^+e^- \to \gamma, U \to \mu^+\mu^-\gamma, e^+e^-\gamma$ and corresponding QED backgrounds is performed, including also the most important higher-order corrections.

The calculation is implemented in a release of the generator BabaYaga@NLO useful for data analysis and interpretation.

The distinct features of U boson production are shown and the statistical significance is analysed.

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