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Forecasting dark showers at Belle II

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Dark showers from strongly interacting dark sectors that confine at the GeV scale can give rise to novel signatures at electron-positron colliders. In my talk, I will discuss the sensitivity of B factory experiments to dark showers produced through an effective interaction arising from a heavy off-shell mediator. I will show that a prospective search for displaced vertices at Belle II can improve the sensitivity to dark showers substantially compared to existing searches for GeV-scale long-lived particles, promptly produced resonances or single photons. Moreover, I will argue that a search for light long-lived particles at LHCb can resolve the underlying structure of the effective interaction and highlight the complementarity of LHC and intensity frontier experiments.

Author: BERNREUTHER, Elias (Fermilab)

Co-authors: Mr BÖSE, Kai (RWTH Aachen University); FERBER, Torben (KIT); HEARTY, Christopher (University of British Columbia (CA)); KAHLHOEFER, Felix (RWTH Aachen); MORANDINI, Alessandro (RWTH Aachen University); SCHMIDT-HOBERG, Kai Ronald (Deutsches Elektronen-Synchrotron (DE))

Presenter: BERNREUTHER, Elias (Fermilab)

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