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Dark photon search and the Higgs-strahlung channel[1] IGAL JAEGLE, University of Hawai'i at Manoa, BELLE COLLABORATION — Many extensions of the Standard Model introduce an additional U(1) interaction, which is mediated by a U(1) boson, often by a Higgs mechanism adding a dark Higgs (or dark Higgses) to the models. This gauge boson, also known as the "Dark Photon," typically has very weak coupling to Standard Model particles. Experimental results from direct Dark Matter searches, (e.g. DAMA/LIBRA) and other experimental anomalies (e.g. g-2), can be explained by such an additional interaction. Dark gauge bosons are typically of low mass; of order MeV to GeV. The ideal tools to discover such particles are therefore not high-energy collider experiments, but lower-energy high-luminosity collider experiments like Belle and BaBar, or dedicated fixed target experiments, several of which are planned or already under construction at JLAB (Newport News, USA) or at MAMI (Mainz, Germany), for example. In Belle, the search of the dark photon focuses on the so-called Higgs-strahlung channel, where a dark photon and a dark Higgs are produced. Preliminary results will be presented and discussed.

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