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BEAST results on SuperKEKB beam induced background with special emphasis on the PLUME pixelated system

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BEAST is an experimental effort to measure the parasitic particle rate induced by the nano-size beam exploited by the high-luminosity SuperKEKB e+e- collider.

During its first data taking period, phase 2 in 2018, the inner volume of the Belle II detector was only partially equipped with the final vertex detector technologies. The remaining volume was covered with various other systems as part of the BEAST setup. Among them, the ultra-light PLUME system was made of two double-sided layers of CMOS pixel sensors.

The BEAST sensors operated during the whole phase 2, with single or two beams and with various machine settings. We will report on the characterization of the particle background observed with the BEAST setup and discuss in particular the benefits of the pixelated PLUME system.

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