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## Early evaluation of the triggering capacity of an upgrade Vertex Detector for the of the Belle II experiment

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An upgraded vertex detector (or VTX) is in development for the Belle II experiment. A central concept of the VTX is the usage of a new CMOS monolithic pixel sensor, OBELIX. The design of this sensor offers new possibilities for specific read-out modes, such as a fast output for track-triggering purpose with degraded spatial granularity.

That means the nearly 400 000 pixels of OBELIX are reduced to only 8 macro-pixels, shaped as strips.

This contribution reports the first study investigating the tracking performance with such macro-pixels and simulations reproducing the VTX geometry.

A track reconstruction algorithm is developed based on a large look-up table containing simulated single track hit pattern over three VTX outer layers. The algorithm is then applied to various simulated data sets as test samples to evaluate figures of merit.

The reconstruction efficiency exceeds 98 % in average but features a clear decrease at low momentum below 500 MeV/c. The sensitivity to tracks drops very rapidly with the distance along the beam axis between the track origin and the collision point. After a few centimeters, no more tracks can be reconstructed.

These early results show that the low granularity mode is a promising solution for building a trigger decision based on tracks reconstructed with the OBELIX sensor.

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