

# Studying the Sensitivity of the Upgrade Phase II LHCb Calorimeter for the rare decay $B^0 \rightarrow \pi^0 \pi^0$ , where one $\pi^0$ decays to the Dalitz $e^+ e^- \gamma$ channel

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Motivation for studying such a rare decay with the LHCb Experiment. LHCb detector is dedicated to flavor physics. The upgrade of the phase II will increase the performance of detection. Especially, with the luminosity increase to reach a number of 50 collisions of protons. This is why it is important to develop the ECAL in order to not be blinded.

The aim of this internship is to understand the Calorimeter and this upgrade to conclude on the feasibility of measure this decay.

## Title

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