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【315】 Study of a very rare decay with multiple leptons in the final state at the LHCb experiment

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Particles decays with muons coming from a virtual photon in the final state are theoretically promising. In particular the discarding of helicity suppression for such channel is an advantage for leptonic flavour universality (LFU) testing in very rare b hadron decay modes. The abundant channel $B^+ \rightarrow K^+ J/\psi \gamma^* (\rightarrow \mu^+ \mu^-)$ can be studied with the available dataset at the LHCb experiment. The search is done with a centralized selection made on $J/\psi \rightarrow \mu^+ \mu^-$ to explore offline reconstruction capabilities for a soft muon pair. Emphasis is brought on the study of the associated fully and partially reconstructed misidentified background. The knowledge on handling these soft muons is crucial for future exploration at LHCb.

Authors: SHCHUTSKA, Lesya (EPFL - Ecole Polytechnique Federale Lausanne (CH)); BOUCHIBA, Sonia Amina (EPFL - Ecole Polytechnique Federale Lausanne (CH)); LISOVSKYI, Vitalii (Technische Universitaet Dortmund (DE))

Presenter: BOUCHIBA, Sonia Amina (EPFL - Ecole Polytechnique Federale Lausanne (CH))

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