technische universität
dortmund

Working Group
Albrecht
Junior Group Mitzel

Flavor physics at LHCb Dortmund

Johannes Albrecht

6 December 2024

IMAPP group presentation

LHCb group Dortmund

Post-Docs


Dr. Elena Dall'Occo


Dr. Dirk Wiedner


Dr. Biljana Mitreska


Dr. Alessandro Scara-botto


Dr. Maik Becker


Dr. Henning Manke


Dr. Quentin Führing


Dr. Mauricio Feo


Dr. Martin Bieker

Promotion


Julian Boelhauve


Fabio de Vellis


Janina Nicolini


David Rolf


Vukan Jevtic


Louis Gerken


Jan Langer


Jannis Speer


Jonah Blank


Jan Ellbracht


Michelle Stroth


Nicole Schulte


Lars Kolk


James Gooding


Micol Olocco


Nils Breer


Jan Peter Wagner


Noah Behling


Jonas Rönsch


Marco Colonna

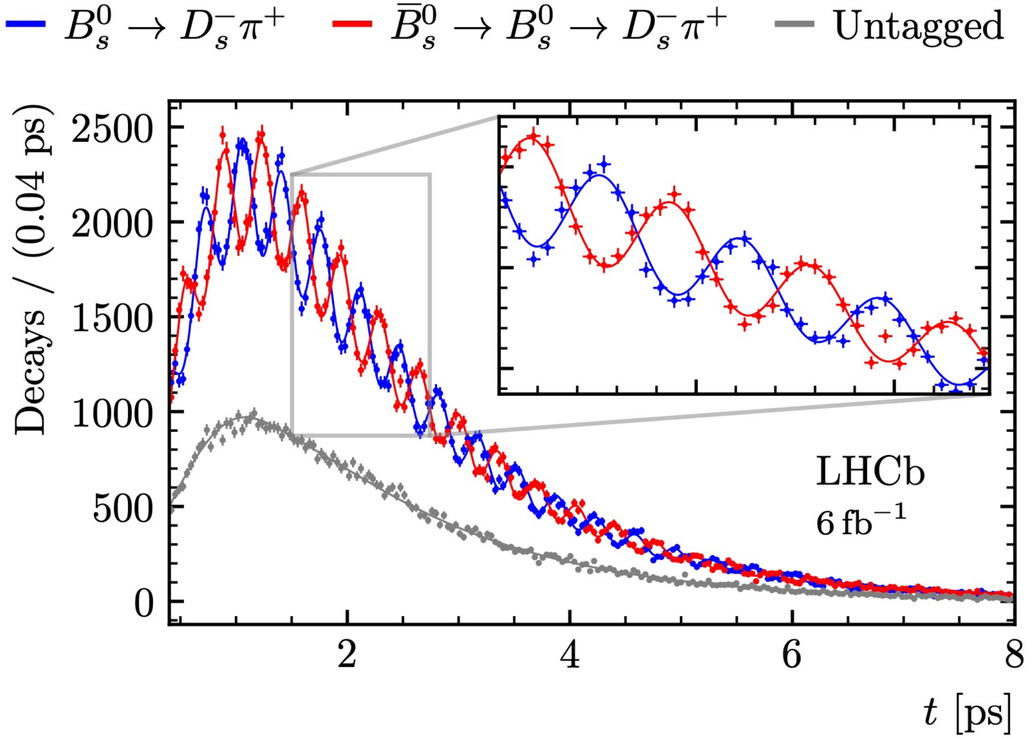

Leandra Moeser

Current IMAPP graduates in the group:

- **Luca Balzani**
  luca.balzani@tu-dortmund.de
- **Maro Colonna**
  marco.colonna@tu-dortmund.de
- **Lorenzo Nisi**
  lorenzo.nisi@tu-dortmund.de
- **Junior group Mitzel not listed**

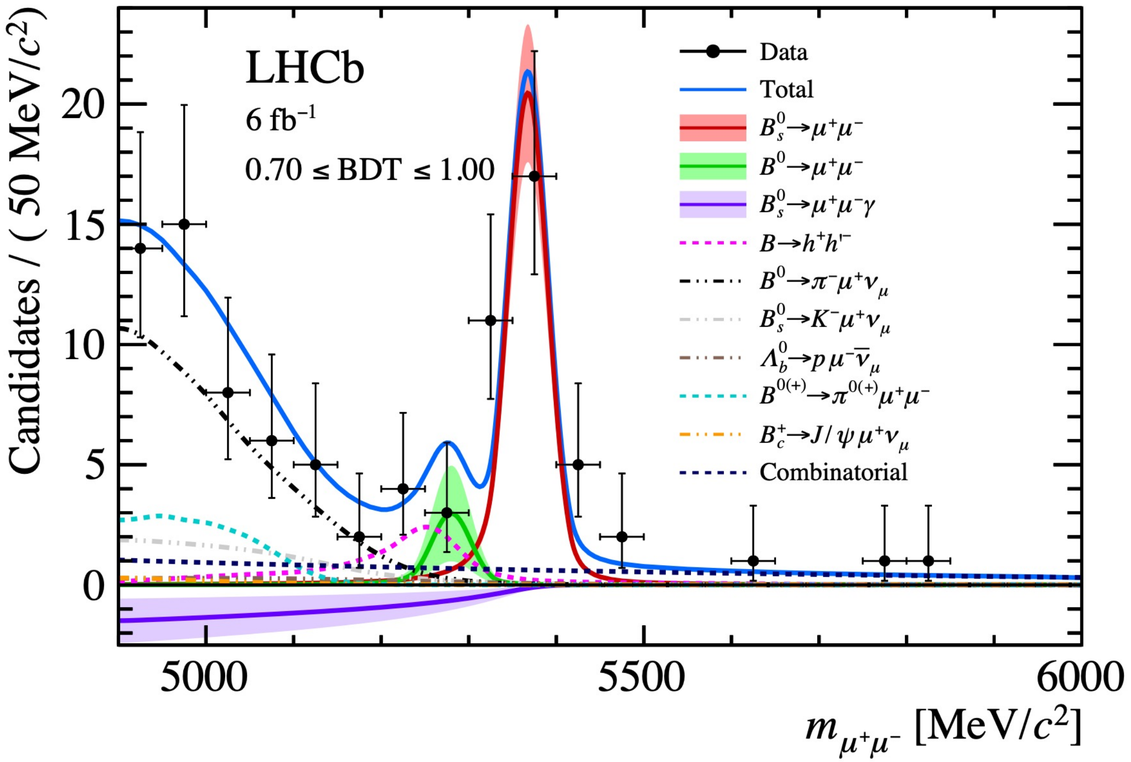
CP violation and flavour tagging

- Study of branching fractions and time-dependent CP violation to determine CKM angles β and γ
- Flavour tagging essential to measure particle–antiparticle oscillations
- Contact: Dr. Quentin Führing quentin.fuehring@tu-dortmund.de
-



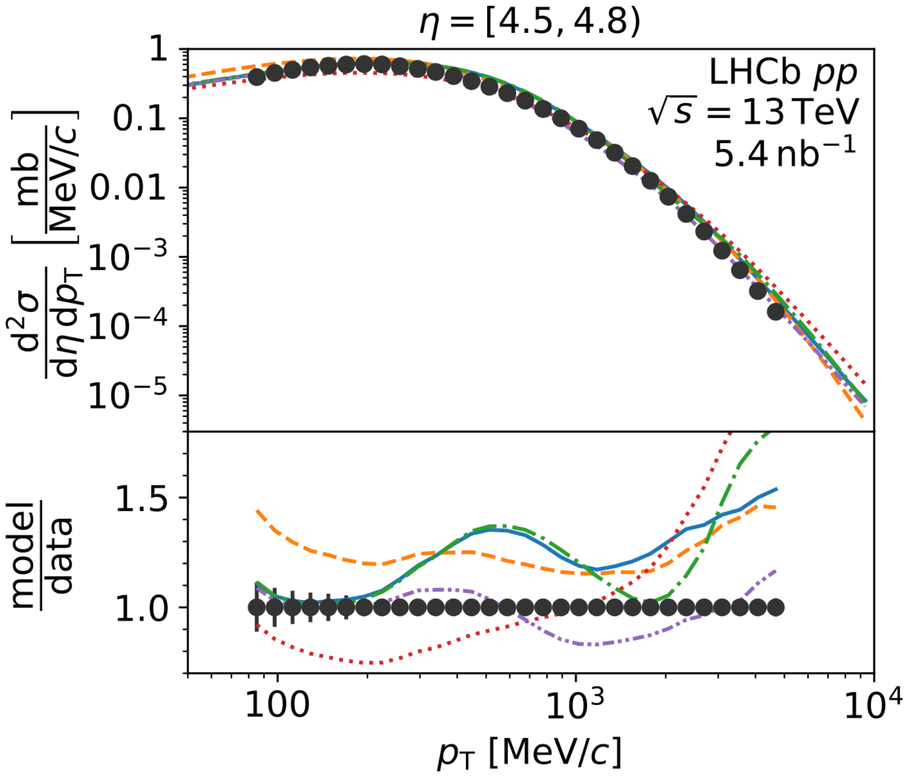
Rare decays

- Rare processes very sensitive to potential effects of new physics
- Efficient suppression of background required
- Contact: Dr. Biljana Mitreska biljana.mitreska@cern.ch



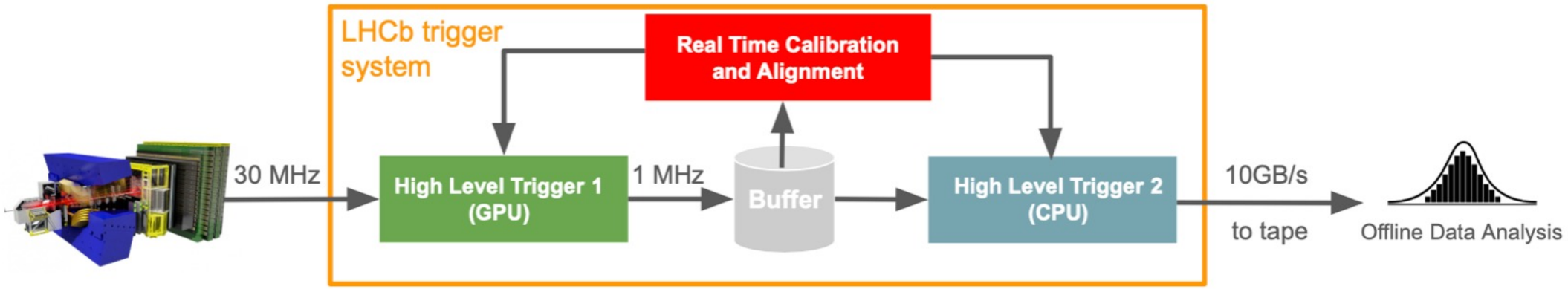
Astro-QCD

- Discrepancy in number of muons produced in high-energy air showers between observations and simulation (Muon Puzzle)
- Validation and improvement of hadronic-interaction models necessary
- Contact: Dr. Felix Riehn
  friehn@lip.pt



Real-time analysis

- Software development for LHCb trigger system to filter data at 30 MHz
- Alignment and calibration in real time for high precision in reconstructed distributions



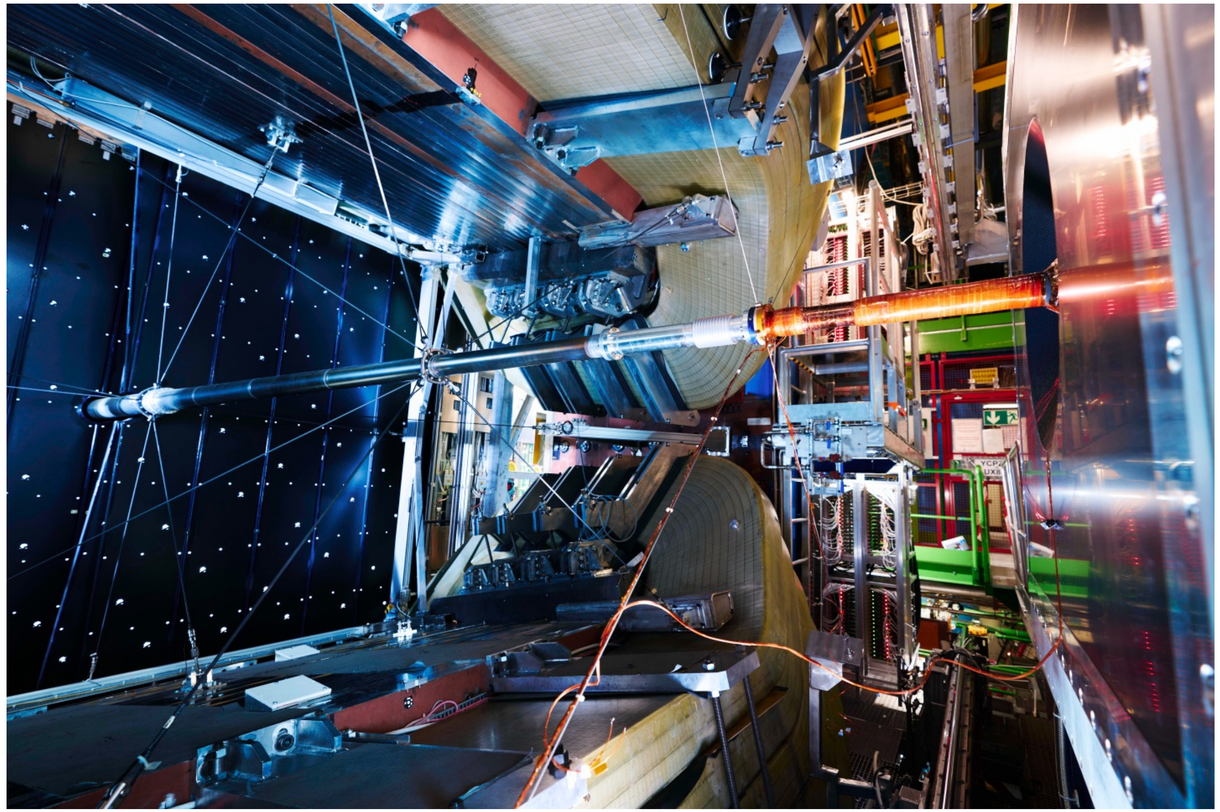
- Contact: Dr. Alessandro Scarabotto & Dr. Biljana Mitreska alessandro.scarabotto@cern.ch & biljana.mitreska@cern.ch

Detector development

- Diamond-based radiation-hard detector as safety system for entire LHCb detector (BCM)

- Silicon pixel detector as next upgrade of LHCb tracking system (Mighty Tracker)

- Contact: Dr. Dirk Wiedner
  dirk.wiedner@tu-dortmund.de



Admission etc.

- Please get in touch with the subgroup leaders, we collect interest and then “collapse the wave function” in late december