

SEMINAR TEILCHENPHYSIK

Thema

The Belle II B-tagging and the unknown side of B decays

Abstract

Our current knowledge of B meson decays in hadrons is limited, with around 40% of the total B width not accounted for in terms of exclusive branching fractions. As a result, unmeasured decays are typically simulated using assumptions and coarse approximations, such as those in the PYTHIA fragmentation model. This limits our ability to accurately understand and control backgrounds in many B decay analyses.

A key part of the Belle II experiment's physics program relies on B-tagging, which involves identifying the partner B meson produced alongside the signal B meson to infer the signal's properties. This email summarises the impact of our limited understanding of hadronic B decays on B-tagging and Belle II measurements in general.

The Belle II collaboration is working to mitigate this challenge by investigating new high-purity hadronic B decay channels. Since the unknown fraction of the B width is distributed across many exclusive channels, significant progress will require a systematic exploration of these channels rather than focusing on individual results. Recent measurements by Belle II, including $B \rightarrow D^{(*)} K^- K^{(*)0}_{(s)}$ and $B^- \rightarrow D^0 \rho(770)^-$, exemplify these efforts.

Vortragender

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Zeit

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im Auftrag:

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