

Buchalla:

QED radiative corrections to rare B-meson decays

Rare decays of the type $B \rightarrow K l^+ l^-$ are of great interest for exploring the physics of flavour. Expected improvements in the experimental precision require further advances in the theoretical treatment of these processes as well. QED corrections have so far been largely neglected, but may affect precision observables. The general interest of the planned project is reinforced by experimental hints at an unexpectedly large isospin breaking. A meaningful discussion of such effects necessitates the consideration of QED radiative corrections. The PhD position is intended to be part of a joint project with Prof. Martin Beneke. This theoretical work is of direct relevance for the experimental B- physics studies at LHCb and the future Belle II, which is a central element of the Universe Cluster's scientific program. It is planned to apply for external funding of the remaining 24 months if the initial 12 months could be funded by the Cluster.