



Observation of CP Violation in $B^+ \rightarrow DK^+$ Decays (Hardback)

By Paolo Gandini

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Hardback. Book Condition: New. 2014 ed.. 234 x 152 mm.
Language: English . Brand New Book. CP violation is a well-established phenomenon in particle physics, but until 2001 it was only observed in kaons. In the last decade, several matter-antimatter asymmetries have been observed in neutral B mesons in line with the expectations of the Standard Model of the weak interaction. Direct CP violation is also expected in the decay rates of charged B^+ mesons versus that of B^- mesons, though the greatest effects are present in a decay that occurs just twice in 10 million decays. Such rarity requires huge samples to study and this is exactly what the LHC, and its dedicated B-physics experiment LHCb provide. This thesis presents an analysis of the first two years of LHCb data. The author describes the first observation of the rare decay, $B^- \rightarrow DK^-$, $D \rightarrow \pi^- K^+$ and the first observation of direct CP violation in this B decay. The work constitutes essential information on the experiment's measurement of a fundamental parameter of the theory and stands as a benchmark against which subsequent analyses of this type will be compared.



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