



Contribution ID: 343

Type: Talk

## Progress on the lattice QCD calculation of rare kaon decays: $K^+ \rightarrow \pi^+ l^+ l^-$

*Thursday, July 28, 2016 5:50 PM (20 minutes)*

The rare decays of a kaon into a pion and a lepton/antilepton pair proceed via a flavour changing neutral current and therefore first arise in the Standard Model only as a second order electroweak interaction. This natural suppression makes these decays sensitive to the effects of potential New Physics. However the rare decay channels  $K^+ \rightarrow \pi^+ l^+ l^-$  are dominated by contributions from long-distance effects, where the two electroweak processes are separated by distances over which non-perturbative QCD effects play a significant role. In this talk I will provide an update on the progress of our exploratory calculations of the long-distance contributions to  $K^+ \rightarrow \pi^+ l^+ l^-$  amplitudes, which make use of the Domain Wall Fermion ensembles of the RBC and UKQCD collaborations.

**Primary author:** Mr LAWSON, Andrew (University of Southampton)

**Co-authors:** Dr JUETTNER, Andreas (University of Southampton); Dr PORTELLI, Antonin (The University of Edinburgh); Prof. SACHRAJDA, Christopher (University of Southampton); Prof. CHRIST, Norman (Columbia University); Dr FENG, Xu (Peking University)

**Presenter:** Mr LAWSON, Andrew (University of Southampton)

**Session Classification:** Weak Decays and Matrix Elements

**Track Classification:** Weak Decays and Matrix Elements