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## **Semileptonic $D \rightarrow \pi \ell \nu$ , $D \rightarrow K \ell \nu$ and $D_s \rightarrow K \ell \nu$ decays with 2+1f Domain Wall Fermions**

*Thursday, 29 July 2021 14:30 (15 minutes)*

We present the status of a project to calculate  $D \rightarrow \pi \ell \nu$ ,  $D \rightarrow K \ell \nu$  and  $D_s \rightarrow K \ell \nu$  semileptonic form factors with 2+1f Domain Wall Fermions for both heavy and light quarks. We plan to cover the full kinematic range and three point functions are being computed on the RBC-UKQCD Iwasaki gauge ensembles. Given the exponential growth of noise, good projection on the ground state is critical for success. We include an analysis of operator diagonalisation within several possible  $2 \times 2$  operator bases and find an admixture of gauged fixed wall and  $\mathbb{Z}(2)$  wall sources to be acceptable at both zero and non-zero momentum. Initial results for semileptonic form factors are presented for first ensembles.

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