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Kaon semileptonic form factors as functions of the momentum transfer with $N_f=2+1+1$ Twisted Mass fermions

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We present lattice results for the form factors relevant for $K \rightarrow \pi l \nu$ decays, obtained from simulations performed by the European Twisted Mass Collaboration with $N_f=2+1+1$ flavors of dynamical quarks, at three values of the lattice spacing and pion masses as low as 250 MeV.

Our determination of $f_{+}(0)$, which in combination with the experimental result for $(f_{+}(0) \cdot V_{us})$ can be used to determine the CKM matrix element, will be presented along with a study of both the vector and the scalar form factors as functions of the momentum transfer comparing our results with the experimental ones.

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