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Current correlators in the coordinate space at short distances

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We calculate the current correlators in the coordinate space and compare them with the experimental information obtained through the spectral functions of hadronic tau decays at ALEPH.

Lattice data are obtained with 2+1 Mobius domain-wall fermions at three lattice spacings 0.044, 0.055 and 0.080 fm and the continuum limit is taken.

On the experimental side, there is no information for the spectral functions above the tau lepton mass and one usually assumes that the perturbation theory is applicable there.

Through the comparison with the lattice data, we are able to test the validity of this quark-hadron duality assumption to some extent.

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