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## Hadronic susceptibilities for $b$ to $c$ transitions from two point correlation functions

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In this talk we present a lattice determination of the hadronic susceptibilities that, as a consequence of unitarity and analyticity, constrain the form factors entering the semileptonic  $b \rightarrow c$  transitions. We evaluate the longitudinal and transverse susceptibilities of the vector, axial and tensor polarization functions at zero momentum transfer from the moments of appropriate two-point correlation functions. The latter are obtained on the lattice employing gauge ensembles of the Extended Twisted Mass Collaboration (ETMC) with  $N_f = 2 + 1 + 1$  flavors of Wilson-clover twisted-mass quarks with masses of all the dynamical quark flavors tuned close to their physical values. The simulations are carried out at four values of the lattice spacing,  $a \approx 0.057, 0.068, 0.080, 0.091$  fm, with spatial lattice sizes up to  $L \approx 7.6$  fm. To allow for a smooth extrapolation to the physical  $b$ -quark mass, the heavy-quark mass is simulated directly on the lattice up to  $\approx 3$  times the physical charm mass.

### Topical area

Quark and Lepton Flavor Physics

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