Scaling test of dynamical Wilson twisted mass fermions with DBW2 gauge action

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Abstract: The advantage of the DBW2 gauge action, compared to the Wilson-plaquette action, is a smaller minimal pion mass for given lattice spacing and lower computational costs. The scaling of different quantities like pseudoscalar meson mass, pseudoscalar decay constant and pseudoscalar to vector meson mass ratio is investigated by comparing numerical simulation data at two different values of the gauge coupling both for vanishing and non-vanishing twisted mass.