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$\Delta I = 3/2$ kaon weak matrix elements with non-zero total momentum lattice TAKESHI YAMAZAKI, RIKEN BNL Research Center, THE RIKEN-BNL-COLUMBIA COLLABORATION — We present preliminary results for $\Delta I = 3/2$ kaon decay matrix elements, which is related to CP violation parameter $\varepsilon^{'}/\varepsilon$, with lattice QCD using domain wall fermions and the DBW2 gauge action at one coarse lattice spacing corresponding to $a^{-1} = 1.3$ GeV. We calculate the elements including two-pion final state interaction on lattice in the non-zero total momentum system, and extract the infinite volume, center-of-mass system decay amplitudes. For extracting the amplitudes, we employ an extension of the Lellouch and Lüscher formula for non-zero total momentum. We compare the result with our previous result calculated with H-parity boundary conditions. We also show the $I = 2$ $\pi\pi$ scattering phase shift and scattering length.

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