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Two-proton decay correlations in the sd-shell KYLE BROWN, Washington Univ — Neutron knockout reactions from the interaction of a E/A = 57.6 MeV ^{17}Ne beam with a ^{9}Be target populated levels in ^{16}Ne. The correlations between the momenta of the ^{14}O+p+p fragments following two-proton (2p) decay were measured using the charged-particle array HiRA (High Resolution Array). Using correlation data measured for the ground state of ^{16}Ne, we were able to test our three-body model for a broad set of parameters. The high statistics and resolution of the data allowed for an unambiguous determination of the effect of the long-range Coulomb interaction on three-body Coulomb decay. The first-excited, $J^{\pi} = 2^{+}$ state in ^{16}Ne was also populated strongly by neutron knockout. The correlations measured from its 2p decay are quite unusual, displaying aspects of both sequential and diproton-like decay. This unusual behavior is largely reproduced by the three-body model and will also be presented here.

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