

Studies of $I=0$ and 2 π - π scattering with physical pion mass

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We report a direct lattice calculation of both the $I=0$ and 2 π - π scattering phase shifts using G-parity boundary conditions on an ensemble of $32^3 \times 64$ gauge configurations at physical quark mass. This extends an earlier calculation of the RBC/UKQCD Collaboration by including additional operators and using non-zero center-of-mass momenta. We apply the generalized eigenvalue treatment to this set of operators in order to understand and reduce excited state contamination and to study π - π scattering at energies in the energy region around the kaon mass. These results are compared with results from Roy's equation.

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