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Insights into the low-energy elastic scattering of halo nuclei

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Recent measurements of low-energy (quasi)elastic-scattering angular distribution of halo nuclei have shown a strong suppression of the Coulomb-nuclear interference peak [1]. Examining the components of the elastic-scattering differential cross sections for $^{11}\text{Be} + ^{64}\text{Zn}$ and $^6\text{He} + ^{208}\text{Pb}$ at energies near the Coulomb barrier [2], this appears to be caused by a dramatic phase-change (destructive) of the reduced Coulomb-nuclear interference term due to continuum couplings.

[1] A. Di Pietro et al., Phys. Rev. Lett. 105 (2010) 022701; Phys. Rev. C 85 (2012) 054607.

[2] A. Diaz-Torres and A. M. Moro, Phys. Lett. B 733 (2014) 89.

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