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Two nucleons in a harmonic-oscillator trap with chiral potential¹

CHIEHJEN YANG, JIMMY ROTUREAU, U. VAN KOLCK, BRUCE BARRETT,
University of Arizona — We establish the connection between the bound-state energy spectrum for two nucleons in a harmonic-oscillator trap and their scattering phase shifts in the continuum with potentials derived from chiral effective field theory (EFT). We compare our results for the 1S_0 and $^3S_1 - ^3D_1$ channels to those obtained with pionless EFT. Our results extend the EFT approach to the no-core shell model to a higher-energy region.

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Chiehjen Yang
University of Arizona

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