Ultracold inelastic three-body collision rates for different two-body potentials with identical spectra[1] EDMUND MEYER, BRETT ESRY, Dept. of Physics, Kansas State — We present a computational study of the way in which three-body observables differ for systems with identical two-body bound state energies and phase shifts. Using standard techniques arising from supersymmetric quantum mechanics [1], we construct a two-body potential with identical phase shifts, but different numbers of bound states. We consider model potentials with masses corresponding to Yb+Yb+H as an example. The mass ratio between Yb and H makes the computation much simpler. We scan through a large range of the two-body scattering length (identical for each potential) and note the differences in three-body loss rates.

[1] D. Baye and J. M. Sparenberg, Phys. Rev. Lett. 73, 2789-2792 (1994)

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