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Hyperangular Green's functions and the three body problem¹ SETH T. RITTENHOUSE, Department of Physics and JILA, University of Colorado, Boulder, CO 80309, NIRAV P. MEHTA, J.P. D'INCAO, JILA, University of Colorado, Boulder, CO 80309, CHRIS H. GREENE, Department of Physics and JILA, University of Colorado, Boulder, CO 80309 — A Green's function approach is formulated and used to determine adiabatic hyperspherical potential curves. The Green's function is found for the hyperangular part of the non-interacting Schroedinger equation with any number of particles in any number of dimensions. This Green's function is then applied to the three-body problem with regularized, zero-range, pair-wise, s-wave interactions, which determine a quantization condition whose solution yields the adiabatic potential curves for any given total angular momentum and exchange symmetry. This method appears to generalize readily to handle multichannel, regularized, zero-range, pair-wise interactions.

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