Abstract Submitted
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Calculation of the two-body scattering T-matrix in Configuration Space GEORGE RAWITSCHER, University of Connecticut — Three-body Faddeev calculations require as input two-body T-matrices. For atomic physics applications configuration space is preferable over momentum space, since the potentials are given in the former. A recently developed solution of the Lippmann-Schwinger integral equation for the one-variable scattering wave function in configuration space [1] has now been extended to obtain the two variable scattering T-matrix, as will be shown with numerical examples. The method is based on spectral expansions into Chebyshev Polynomials of two auxiliary functions in each radial partition, in terms of which the T-matrix is obtained. The result is an important ingredient for the solution of the Faddeev integral equations in configuration space [2].
[1] G. Rawitscher and I. Koltracht, Computing in. Sc. and Eng., **7**, 58 (2005);
[2] W. Glöckle, and G. Rawitscher; "Three-atom scattering via the Faddeev scheme in configuration space," physics/0512010 at arxiv.com;

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