Abstract Submitted
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**Solution of a Schroedinger equation containing a general non local potential** JOSEPH POWER, GEORGE RAWITSCHER[1], University of Connecticut — The non locality is given by an integral kernel K(r,r') that is general. We solve the corresponding Lippmann-Schwinger integral equation a) by expanding the wave function into a Fourier series (Galerkin method), and b) by a spectral method involving Chebyshev polynomials (CP). We apply them to the case of the much used Perey-Buck kernel [1], and find that, by using 50 sine functions, method a) requires an hour of computing time, while method b) using 50 CP's takes less than one second and is precise to $1{:}10^5$. Previously the spectral method could be applied only to a kernel of rank 1, representing for example the knock-on exchange process [2], but with our new procedure we will be able to compare relatively easily the effect of several types of non localities [3].

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