Abstract Submitted
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A novel approach for Milne's phase-amplitude method[1] I. SIMBOTIN, D. SHU, R. CÔTÉ, University of Connecticut, Storrs — We have uncovered a linear equation for the envelope function—fully equivalent with the original nonlinear equation of Milne's—and have implemented a highly accurate and efficient numerical method for computing the envelope and the associated phase. Consequently, we obtain a high precision parametrization of the wavefunction, within a very economical approach. The key ingredients are: (i) straightforward optimization for smoothness, and (ii) Chebyshev polynomials as the workhorse for solving integro/differential equations. The latter also give a built-in interpolation, and allow for developing numerical tools that are robust, accurate, and convenient.

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