

Abstract Submitted  
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**Vector variable solution of the N-N scattering problem using the momentum-space Argonne V18 interaction**<sup>1</sup> SARAVANAN VEERASAMY, ELSTER CHARLOTTE, Ohio University, WAYNE POLYZOU, The University of Iowa — We discuss the formulation and solution of the nucleon-nucleon scattering problem using a vector-variable approach in momentum space. We take the Argonne V18 potential as input potential. The operator form of this potential is represented by the sum of a complete set of spin-isospin operators multiplied by functions of the momentum transfer, which are accurately approximated using Chebyshev polynomials. This representation makes it easy to compute Wolfenstein parameters directly from the solution of the Lippmann-Schwinger equation. The Wolfenstein parameters are then used to calculate the experimental observables. This approach overcomes some of the difficulties in using partial wave expansions to represent smooth scattering amplitudes at medium energies. Wolfenstein parameters and a representative set of observables will be presented and compared to calculations based on partial waves.

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