Abstract Submitted
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Relativistic Effects in Quantum Mechanical Potential Scattering.[1] CREIGHTON LISOWSKI, RICHARD PELPHREY, RAINER GROBE, Q. CHARLES SU, Illinois State University — We examine the effect of relativistic mechanisms on the scattering of an incoming electron with one-dimensional attractive and repulsive potentials. We compare the energy dependence of the transmission coefficients obtained from the Dirac equation with the non-relativistic limit of the Schrödinger equation. This limit requires the introduction of discontinuous wave functions. When transmission expansion in orders of 1/c diverges we propose a numerical method that permits us to compute the sum of a diverging series from only the first N terms by generalizing the traditional Borel technique. [1,2]. We acknowledge the support by the National Science Foundation. [1] C. Lisowski, S. Norris, R. Pelphrey, E. Stefanovich, Q. Su, R. Grobe, Ann. Phys. 373, 456 (2016) [2] Q.Z. Lv, S. Norris, R. Pelphrey, Q. Su, R. Grobe, Comp. Phys. Comm. 219, 1 (2017).

[1]NSF

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