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## A NUMERICAL SOLUTION TO THE QUANTUM MECHANICAL INVERSE PROBLEM WITH RATIONAL SCATTERING COEFFICIENTS

**Michael H Borkowski** *Simon's Rock College of Bard / Amherst College*

**Abstract of Talk:** We consider the inverse problem of quantum scattering for the one-dimensional Schrödinger equation. The potentials that we study are real valued, vanish at infinity, have no bound states, and correspond to rational scattering coefficients. While other procedures exist to obtain the potential from a rational reflection coefficient, our method also yields a closed-form solution to the Schrödinger equation. Finally, we present a Mathematica notebook that implements this recovery procedure to calculate all of the relevant functions.