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Schrdingers Original Quantum Mechanical Solution for Hydrogen[1] JEREMY CANFIELD, Georgetown University, ANNA GALLER, Institut Polytechnique de Paris, JAMES FREERICKS, Georgetown University — In 1926, Erwin Schrödinger wrote a series of papers that invented wave mechanics and set the foundation for much of the single-particle quantum mechanics that we teach today. In his first paper, he solved the Schrödinger equation using the Laplace method, a powerful but rarely taught technique. This method lets one examine quantum mechanics from a complex-analysis perspective. This method is useful to consider when teaching quantum mechanics, as these techniques can be widely used, unlike the standard Frobenius method. No one has carefully gone through the arguments that Schrödinger used in this paper; instead it is often just stated that the solution was adopted from Schlesinger's famous differential equation textbook. In this talk, I introduce the Laplace method for solving differential equations and discuss how this method can be used to solve for the energy eigenfunctions of the hydrogen atom, following Schrödinger's original solution, with all the necessary details. This talk is based on work presented in a paper of the same name from Galler, Canfield, and Freericks, forthcoming in EJP.

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