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Paths into the Schrodinger Equation via Classical and Quantum Field Theories MARLAN SCULLY, Texas AM University

The time-dependent Schrdinger equation is a cornerstone of quantum physics and governs all phenomena of the microscopic world. However, despite its importance its origin is still not widely appreciated and properly understood. We obtain the Schrdinger equation in two ways: 1) from classical statistical mechanics based on the Hamilton-Jacobi equation[1] and 2) by showing the deep sense in which the Maxwell equations for the photon are very analogous to the Schrdinger equation for the electron and/or the neutrino.[2]