Meeting: 1001, Evanston, Illinois, SS 22A, Special Session on Special Functions, Orthogonal Polynomials, and their Applications

1001-33-153 **Pete A McCoy*** (pam@usna.edu), Mathematics Department, U.S. Naval Academy, Annapolis, MD 21402, and **Reza Malek-Madani** (rmm@usna.edu), Mathematics Department, U.S. Naval Academy, Annapolis, MD 21402. *Analysis of the Paraxial Wave Equation: An Application of Special Functions.*

The Paraxial Wave Equation (PWE) arises in the modeling of laser propagation in a vacuum. Function Theoretic Methods are used to characterize solutions of the PWE. A new class of function theoretic solutions whose singularities are manifested as sectionally analytic functions is constructed via integral transform and special function techniques. (Received August 23, 2004)