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Robert J. Buckingham* (robbiejb@umich.edu), Department of Mathematics, 2074 East Hall, 530 Church St., Ann Arbor, MI 48109, and **Stephanos Venakides**. *Long-Time Asymptotics of the Nonlinear Schrodinger Equation Shock Problem*.

The long-time asymptotics of two colliding plane waves governed by the focusing nonlinear Schrodinger equation are analyzed via the inverse scattering method. We find three asymptotic regions in space-time: a region with the original wave modified by a phase perturbation, a residual region with a one-phase wave, and an intermediate transition region with a modulated two-phase wave. The leading-order terms for the three regions are computed with error estimates using the steepest-descent method for Riemann-Hilbert problems. A new adaptation of this method is required to handle the non-decaying initial data. (Received February 14, 2006)