1089-78-46 **Pavel M Lushnikov***, Department of Mathematics and Statistics, MSC01 1115, 1 University of New Mexico, Albuquerque, NM 87131-0001, and **Sergey A Dyachenko** and **Natalia Vladimirova**. *Logarithmic scaling of critical collapse of Nonlinear Schrodinger equation.*

We study the collapse of the nonlinear Schrodinger equation (NLS) in critical case of dimension two. The collapse describes e.g. self-focusing of light in nonlinear Kerr media. The scaling of self-similar solutions near collapse point has $(t_0 - t)^{1/2}$ scaling law with the logarithmic modifications of log-log type. We show that the well-known leading order log-log modification occurs for nonrealistic exponentially large amplitudes of light $\sim 10^{10^{100}}$. Instead we derived a new equation for adiabatically slow parameter which determines the system dynamics. Based on that equation we develop a perturbation theory for scaling modifications beyond leading log-log order and perform detailed comparison with simulations. We show that new scaling agrees with simulations for very moderate increase ($\sim$ 3 times) of the amplitude of initial pulse. (Received January 18, 2013)