

Meeting: 1001, Evanston, Illinois, SS 14A, Special Session on Nonlinear Waves

1001-35-309 **Justin Holmer*** (holmer@math.berkeley.edu), University of California, Department of Mathematics, #3840, Berkeley, CA 94720. *The initial-boundary value problem for the one-dimensional nonlinear Schrödinger equation.*

The techniques of Colliander-Kenig (*The generalized Korteweg-de Vries equation on the half line*, Comm. Partial Differential Equations **27** (2002), pp. 2187–2266) are applied to obtain local well-posedness for the one-dimensional nonlinear Schrödinger equation $i\partial_t u + \partial_x^2 u + \lambda u|u|^{\alpha-1}$ on the half-line under low boundary regularity assumptions. Related questions for the linear equation $i\partial_t u + \partial_x^2 u = 0$ are also discussed, including (1) when does the exact boundary controllability problem have a solution; and (2) when does an initial-boundary configuration arise as the restriction of the solution of an initial-value problem. (Received August 30, 2004)