

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

1001-35-158 **Jerry L. Bona, Shuming Sun and Bing-Yu Zhang*** (bzhang@math.uc.edu), Department of Mathematical Sciences, University of Cincinnati, Cincinnati, OH 45221-0025. *Beyond $-3/4$ for the Korteweg-de Vries Equation.* Preliminary report.

Consider the Korteweg-de Vries (KdV) equation posed on the whole real line R . It is well-known now that its pure initial-value problem (IVP) is well-posed in the classical Sobolev space $H^s(R)$ for the index s no less than $-3/4$. When $s < -3/4$, the IVP is known to be (conditionally) ill-posed in the sense that the corresponding solution map (if exists) cannot be uniformly continuous. In this talk we will discuss the KdV equation posed on a finite interval (a, b) with the non-homogeneous Dirichlet boundary conditions. It will be demonstrated that the associate initial-boundary-value problem is well-posed in the space $H^s(a, b)$ for $s > -1$. (Received August 23, 2004)