Meeting: 1004, Bowling Green, Kentucky, SS 12A, Special Session on Partial Differential Equations and Their Applications

1004-35-70 **Bing-Yu Zhang*** (`bzhang@math.uc.edu`), Department of Mathematical Sciences, University of Cincinnati, Cincinnati, OH 45221. *On Recent Progress of Nonhomogeneous Boundary-Value Problems of the Korteweg-de Vries Equation.*

The mathematical theory of the pure initial-value problem for the Korteweg-de Vries KdV equation posed on the whole line $\Re$ or on a periodic domain has taken great strides forward in the work of Bourgain, Kenig, Ponce, and Vega as well as many others in the past two decades. By contrast, the theory for nonhomogeneous boundary-value problems for the KdV equation posed on the half line $\Re^+$ or on a finite interval (a, b) has lagged far behind. Considerable efforts have been made recently to bring the theory for these nonhomegneous boundary-value problems to a level similar or beyond to that attained for the pure initial-value and periodic problems. In this talk, we will give an overall review of the progress made recently on the well-posedness of the nonhomogeneous boundary-value problems of the KdV equation. (Received January 17, 2005)