1120-35-309   **Athanassios S. Fokas**, **A. Alexandrou Himonas** and **Dionyssios Mantzavinos***
(`dionyssi@buffalo.edu`). *The Korteweg-de Vries equation on the half-line and a new approach for the analysis of initial-boundary value problems.*

Over the past 60 years, numerous results have been established for the initial value problem of nonlinear dispersive PDEs, like the celebrated nonlinear Schrödinger (NLS) and Korteweg-de Vries (KdV) equations, using techniques from integrability, harmonic analysis, geometry and other fields. This is not the case, however, concerning initial-boundary value problems for these PDEs which remain mostly unexplored. In this talk, a new approach for studying the well-posedness in Sobolev spaces of such initial-boundary value problems will be presented. The KdV equation on the half-line will be used as an illustrative example; however, this new approach can be applied to evolution equations of arbitrary spatial order and various nonlinearities. (Received February 23, 2016)