

Abstract Submitted  
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**Adaptive Control of the Generalized Korteweg-de Vries Burgers Equation** NEJIB SMAOUI, ALAA EL-KADRI, MOHAMED ZRIBI, Kuwait University — The adaptive boundary control problem of the generalized Korteweg-de Vries-Burgers (GKdVB) equation when the spatial domain is  $[0,1]$  is considered. Three adaptive control laws are designed for the GKdVB equation when either the kinematic viscosity  $\nu$  or the dynamic viscosity  $\mu$  is unknown, or when both viscosities  $\nu$  and  $\mu$  are unknowns. Using the Lyapunov theory, the  $L^2$ -global exponential stability of the solutions of this equation is shown for each of the proposed control laws. Also, numerical simulations based on the Finite Element method (FEM) are given to illustrate the analytical results.

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