# KdV-Burgers Equation on the Negative Half-Plane

**Ivonne Rivas Triviño** joint work with Liliana Esquivel

**ABSTRACT**

This talk analyzes the Korteweg-de Vries-Burgers (KdV-Burgers) equation on the negative half-line, $\mathbb{R}^-$. We present results on well-posedness in $H^s(\mathbb{R}^-)$ for $s \geq -1$ and boundary controllability. New boundary estimates for solutions of the KdV-Burgers equation on $\mathbb{R}^-$ are obtained. The unbounded domain $\mathbb{R}^-$ introduces challenges to compactness properties crucial for proving exact controllability, necessitating a review of the intrinsic properties of the equation.

## References

[1] Bona, J., Sun, S., & Zhang, B.-Y. (2008). Non-homogeneous boundary value problems for the Korteweg-de Vries and the Korteweg-de Vries-Burgers equation in a quarter plane. *Ann. I. H. Poincaré-AN*, 25, 1145–1185.

[2] Rosier, L. (2000). Exact Boundary Controllability for the Linear Korteweg–de Vries Equation on the Half-Line. *SIAM Journal on Control and Optimization*, 39(2), 331–351.

[3] Esquivel L. Rivas I. Well-posedness and Bounded controllability for the Korteweg-de Vries-Burger equation in a half-plane. Submitted.