1110-65-251 **Alexander Kurganov*** (kurganov@math.tulane.edu), Mathematics Department, 6823 St. Charles Ave., New Orleans, LA 70118. *Well-Balanced Positivity Preserving Central-Upwind Scheme for the Shallow Water System with Friction Terms.*

Shallow water models are widely used to describe and study free-surface water flow. While in some practical applications the bottom friction does not have much influence on the solutions, there are still many applications, where the bottom friction is important. In particular, the friction terms will play a significant role when the depth of the water is very small.

We study shallow water equations with friction terms and develop a semi-discrete second-order central-upwind scheme that is capable of exactly preserving physically relevant steady states and maintaining the positivity of the water depth. The presence of the friction terms increases the level of complexity in numerical simulations as the underlying semi-discrete system becomes stiff when the water depth is small. We therefore implement an efficient semi-implicit Runge-Kutta time integration method that sustains the well-balanced and sign preserving properties of the semi-discrete scheme. We test the designed method on a number of one- and two-dimensional examples that demonstrate robustness and high resolution of the proposed numerical approach. (Received February 22, 2015)