1137-35-81 **Choah Shin*** (shinc@oregonstate.edu) and **Malgorzata Peszynska**. *Regularization of nonlinear conservation law with space-dependent flux function, and numerical approximation.*

We study a conservation law with space-dependent flux functional. The first challenge is that the conservation law contains a multivalued graph, and we use a change of variable to rewrite the conservation law. Another challenge is that the obtained flux function is not smooth and depends on two variables. We use regularization to obtain a smooth concave flux function and discuss the seemingly unphysical, and at first glance, unexpected "blow-up" behavior of this problem. We also discuss the convergence of the numerical solution to this problem using the Godunov's scheme with local phase behavior solver. This problem is motivated by the study of greenhouse gas methane transport and hydrate crystal formation in sediments under the ocean. (Received January 25, 2018)