

On Local Existence of Shallow Water Equations with Vacuum

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In this talk, I will present our new local existence result to the shallow water equations describing the motions of vertically averaged flows, which are closely related to the 2-D isentropic Navier-Stokes equations for compressible fluids with density-dependent viscosity coefficients. Via introducing the notion of regular solutions, the local existence of classical solutions is established for the case that the viscosity coefficients are degenerate and the initial data are arbitrarily large with vacuum appearing in the far field.