

High Resolution Schemes for Open Channel Flow

Jiří Egermaier, Marek Brandner, Hana Kopincová

Fakulta aplikovaných věd, ZČU v Plzni

One of the commonly used model for river flow modelling is based on the Saint-Venant equations - system of hyperbolic equations with spatially varying flux function and the source terms. We introduce conservative finite volume methods that solve this type of balanced laws efficiently and at the same time satisfy some important properties. The properties like consistency, stability and convergence are necessary for the mathematically correct solution. But the schemes should be also positive semidefinite and preserve steady states to obtain more physically relevant solution of the flow problems. These schemes can be also modified to the high order or for solving flow problems with friction source terms.