

THE ACTIVE FLUX METHOD FOR HYPERBOLIC CONSERVATION LAWS

Christiane Helzel

Heinrich-Heine-University Düsseldorf, Germany

christiane.helzel@hhu.de

In 2011, Eymann and Roe introduced a new class of truly multidimensional finite volume methods. These so-called Active Flux methods use some concepts which are quite different from concepts that are typically used in numerical schemes for hyperbolic problems. In particular the method is based on the use of point values as well as cell average values, it uses a continuous reconstruction and does not rely on the use of Riemann solvers.

I will review the current state of the art of Active Flux methods and present recent results of our group. These include a discussion of different evolution formulas for the update of the point values, results on the linear stability of the resulting methods as well as a discussion of limiters. Furthermore, we explored the use of Active Flux methods on Cartesian grids with adaptive mesh refinement as well as on cut cell grids.