High Order Finite Volume Methods for Elliptic Equations

Long Chen
Department of Mathematics, University of California, Irvine, USA
chenlong@math.uci.edu

Finite volume methods are an important class of discretization method since the conservation law is locally preserved and the capability of discretizing complex geometry domains. However it is limited by low order approximation since most finite volume methods use piecewise constant or linear function space. In this talk, a new class of high order finite volume methods for second order elliptic equations is developed by combining high order finite element methods and a linear finite volume method. Our new method is modified from hierarchical basis finite element method.