

HIGH ORDER MIMETIC DIFFERENCE METHODS AND APPLICATIONS

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ABSTRACT

High Order Mimetic difference methods are numerical techniques for solving partial differential equations by using discrete operators that mirror the essential properties of continuous mathematical and physical systems, such as conservation laws, symmetry, and vector calculus identities. In addition, the Mimetic Operators Library Enhanced (MOLE) has been created to facilitate writing computationally efficient codes to solve complex societal problems. Here we present some recent advancement on the mimetic difference methods and some applications to demonstrate the effectiveness and applicability of these methods.

SPEAKERS

1. Miguel Dumett (San Diego State University): Low-Cost High-Order A Posteriori Error Estimation for Mimetic Difference Schemes of Elliptic Equations
2. Christos E. PAPOUTSELLIS (Laboratoire d’Hydraulique Saint-Venant (LHSV)): Mimetic finite-difference discretisation of the Serre–Green–Naghdi wave model
3. J. de Curtò (BARCELONA Supercomputing Center / Universidad Pontificia Comillas ICAI): Isomorphism Theorems and Stochastic Spectra for Mimetic Operators
4. Jose E Castillo (San Diego State University): A mimetic Difference Scheme for Euler Equations