High Order Mimetic Differences and Applications

Speaker:

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Abstract:

Mimetic differences operators have been used more and more frequently to construct numerical schemes for solving partial differential equations with variable degree of success. There are many researches currently active in this area pursuing different approaches to achieve this goal and many algorithms have been developed along these lines. Loosely speaking, "mimetic methods" have discrete structures that mimic vector calculus identities and theorems. These make the numerical schemes based on mimetic difference operators more faithful to the physics of the problem under investigation. Specific approaches to discretization have achieved this compatibility following different paths, and with diverse degrees of generality in relation to the problems solved and the order of accuracy obtainable. In this session advances of High Order Mimetic differences methods and applications will be presented with focus on geophysical fluids.