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**Angel A Boada\*** (aboadavelazco@sdsu.edu) and **Jose E Castillo**. *High Order Mimetic Methods on Overlapping Grids*.

Overture is a portable and flexible object-oriented framework for solving partial differential equations (PDEs). One of its features is the composite overlapping grid generation for solving problems that involve the simulation of complex moving geometry. Overlapping grids are a type of block structured body-fitted conforming grids that are used to resolve fine-scale features in a particular domain. One of the most prominent advantages of using these grids is the high efficiency for high-order methods. In this talk, we examine the viability of mimetic operators on overlapping grids by solving representative PDEs on grids generated by Overture, while exploring different interpolation techniques on these grids (both implicitly and explicitly). Examples will be presented to demonstrate the effectiveness of the schemes. (Received September 26, 2017)