

# Extensions of entropy stable nodal discontinuous Galerkin schemes

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## Abstract

High order discontinuous Galerkin (DG) methods provide improved accuracy and low numerical dispersion/dissipation for simulations of nonlinear conservation laws. However, these methods also tend to suffer from instability in practice, requiring filtering, limiting, or artificial dissipation to prevent solution blow up. *Entropy stable* nodal DG methods based on summation-by-parts (SBP) operators and flux differencing address this instability by ensuring satisfaction of a semi-discrete entropy inequality. In this talk, we will present extensions of entropy stable DG methods to more general nodal points, which provide improved accuracy on warped and non-conforming meshes.

## Keywords

High order, discontinuous Galerkin, entropy stability