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Implicit positivity-preserving high-order discontinuous Galerkin methods for solving conservation laws.

In this talk I will introduce our recent progress on designing implicit positivity-preserving discontinuous Galerkin methods for solving conservation laws. We consider the Euler backward and the Crank-Nicholson time discretization. For linear scalar equations, we derive CFL conditions for both methods to be positivity-preserving. For nonlinear equations and systems, numerical examples will be provided to illustrate the applicability of the proposed methods. (Received January 15, 2018)