

"Simplified ADER schemes based on a time-reconstruction solver for the generalised Riemann problem"

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Abstract

I describe joint work with Riccardo Dematte, Vladimir Titarev and Gino Montecinos. We propose a new class of solvers for the Generalized Riemann Problem of order K , GRP_K , that avoid the Cauchy-Kowalewskaya procedure and result in simpler ADER schemes. This is achieved by exploiting the history of the numerical solution that makes it possible to devise a time-reconstruction procedure at the element interface. This paper is restricted to the one-dimensional one-dimensional Euler equations. Results indicate that the time-reconstruction approach offers significant advantages not only in terms of ease of implementation but also in terms of efficiency of the schemes.