

A moment approach to solve entropy solutions to scalar conservation laws

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In this talk, we will propose a new numerical scheme, based on the so called Lasserre hierarchy, which solves scalar conservation laws. Our approach is based on a very weak notion of solution introduced in [1], which is called *entropy measure-valued solution*. Among other nice properties, this formulation is linear in a Borel measure, which is the unknown of the equation, and moreover it is equivalent to the well-known entropy solution formulation. Our aim is to explain that the Lasserre hierarchy allows to solve such a linear equation without relying on a mesh, but rather by truncating the *moments* of the measure under consideration up to a certain degree. We will also explain how to reconstruct the graph of the solution, based on some moments data. This talk is based on some recent results, provided in [2].

Références

- [1] R.J. DI PERNA, *Measure-valued solutions to conservations laws*, Archive for Rational Mechanics and Analysis, 1985.
- [2] S. MARX, T. WEISSER, D. HENRION AND J.B. LASSERRE, *A moment approach for entropy solutions to hyperbolic PDEs*, Mathematical Control and Related Fields, 2019.