On the Global Existence of the Solutions of the Riemann Problem for Shallow Water Equations

Anca-Veronica Ion, Stelian Ion

"Gheorghe Mihoc - Caius Iacob" Institute of Mathematical Statistics and Applied Mathematics of Romanian Academy, Bucharest, Romania
e-mail: ro_diff@yahoo.com, averionro@yahoo.com

In this talk we investigate the Riemann Problem for a shallow water model with vegetation and terrain data. We present a constructive method, that is not dependent on how large data jump is, to solve the problem. Essentially the method involves the resolution of a nonlinear equation that can have multiple solutions or no solution. The method uses a criterion of admissibility to select among multiple possible solutions a physical relevant one. To illustrate the method several examples are presented.

Acknowledgement. *Partially Supported by a grant of Romanian Ministery of Reserach and Innovation, CCCDI-UEFISCDI, project number PN-III-P1-1.2-PCCDI-2017-0721/34PCCDI/2018, within PNCDI III*