Coloquio Queretano de Matemáticas

26 de Mayo @ 1pm

Theoretical modelling and numerical simulation of hyperbolic balance laws

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In the first part, we formulate a one dimensional isothermal drift flux model of two phase flows which is fully hyperbolic and conservative. The exact solution of this system, consisting of elementary waves has been derived. Furthermore, using the singular surface theory the evolution of discontinuity is discussed. In the second part, we formulate a weakly compressible two-layer shallow water flow in channels with arbitrary cross sections. This model is a balance law with non-conservative products. Using the method of generalised Rankine-Hugoniot conditions we derive the Riemann invariants for the shock and contact wave. Furthermore, a high-resolution, non-oscillatory semi-discrete central-upwind scheme is presented. The scheme extends existing central-upwind semi-discrete numerical methods for hyperbolic balance laws. We validate the exact solution with the numerical approach.

investigación   **modelado de fluidos**   **PDEs**

Evento hibrido, con transmisión en vivo
presencial: Aula Teórica, IM-UNAM Juriquilla
virtual: Zoom ID: 979 443 2722   pass: DRvwX2

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Nodo Multidisciplinario de Matemáticas Aplicadas

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