

Speaker: Nils H. Risebro

Title: *Upwind filtered conservation laws*

Abstract:

We consider scalar conservation laws where the flux is a nonlinear average, determined by an integral kernel Φ and an upwind direction at each point. This type of flux function is interesting in itself, but this work is also inspired by models of traffic flow, and by fractional derivatives. It is also interesting that many upwind numerical schemes can be reformulated as upwind filtered conservation laws. We show that the solution of upwind filtered conservation laws has many nice properties, including a stability result with respect to the kernel. This estimate implies that we recover the conservation law when the kernel converges to a Dirac point measure.

Joint work with Giuseppe Coclite and Kenneth Karlsen.