ANDY WAN, McGill University

Conservative methods and long-term stability for dynamical systems

The multiplier method was recently introduced as a general conservative discretization to preserve conservation laws of ODEs and PDEs. In particular, the multiplier method is applicable even for systems without a symplectic or variational structure, such as dissipative problems. In this talk, we apply the multiplier method to first order ODEs and systematically construct conservative schemes for a variety of dynamical systems. Moreover, we discuss a fundamental result on the long-term stability of conservative methods.

This is joint work with A. Bihlo (Memorial University at Newfoundland) and J.-C. Nave (McGill University).