***Positivity preserving schemes for hyperbolic conservation laws via downwind-biased discretizations***

**David Ketcheson** (King Abdullah University of Science and Technology), Sigal Gottlieb

Strong stability preserving (SSP) integrators for initial value ODEs preserve temporal monotonicity solution properties in arbitrary norms. All existing SSP methods, including implicit methods, either require small step sizes or achieve only first order accuracy. It is possible to achieve more relaxed step size restrictions in the discretization of hyperbolic PDEs through the use of both upwind- and downwind-biased semi-discretizations. I will review recent results on the maximum achievable strongly stable step size for implicit Runge-Kutta methods combining upwind- and downwind-biased spatial discretizations, including second order methods with arbitrarily large step size restrictions and higher order methods that allow reasonably large step sizes.