1105-65-344 **Yaw Kyei*** (ykyei@ncat.edu), NC. *Space-time finite volume differencing discretizations of scalar hyperbolic conservation laws with source terms.*

A Space-time finite volume differencing discretization method is applied to construct a parameterized family of two-step explicit higher-order semi-lagrangian schemes for scalar hyperbolic conservation laws with source terms in 1d. A local space-time residual error expansion for the integral form of the equation is first formulated by using general weighted quadratures to approximate flux integrals about the centroid mesh point of each local space-time control volume. Efficient quadrature approximations of the flux integrals are sought through minimization of the residual error to account for local space-time fluxes to all neighboring mesh points within the domain of dependence of new update points. Closed form parameterized descriptions of the quadrature weights and the leading viscosity coefficients in the associated residual errors are then determined and optimized to guide the right selections of time steps in relation to spatial resolutions to minimize nonphysical oscillations and guarantee uniform higher-order convergence rates. (Received September 23, 2014)