

1096-65-2171      **Yu-Min Chung\*** (yumchung@ku.edu), Snow Hall 405, 1460 Jayhawk Blvd, Lawrence, KS 66045,  
and **Ricardo Rosa** (rrosa@ufrj.br). *Inertial manifolds and foliations via Newton's method.*

Several Newton-type methods are presented for the accurate computation of the leaves in the foliation of an ODE near a hyperbolic fixed point. The foliation can be found through the Lyapunov-Perron method, which is an infinite dimensional problem. Hence, those methods are generalized to such cases. Local and global convergence results and the rate of convergence for those methods are investigated. The algorithms are demonstrated on a test problem and the Kuramoto-Sivashinsky equation. Finally, we compare these methods with the successive iteration method in terms of the algorithm complexity and efficiency. (Received September 17, 2013)