1125-65-2023Dmitriy Zhigunov* (dzhigunov@email.wm.edu), College of William & Mary, Jones Hall, Room100, 200 Ukrop Way, Williamsburg, VA 23185, and Yu-Min Chung (ychung@wm.edu), College of
William & Mary, Jones Hall, Room 100, 200 Ukrop Way, Williamsburg, VA 23185. (Un)Stable
Manifold Computation via Forward-Backward Iteration.

The stable and unstable manifolds of an autonomous differential equation can be shown to satisfy a boundary value problem on an infinite interval. To approximate the manifold, we truncate the interval to a finite one, and discretize the the differential equation through finite difference methods. This leads to a "forward-backward" iterated scheme. The subsequent errors due to truncation and discretization are discussed through numerical experiments and analytically. (Received September 20, 2016)