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S S Gregory Cochran* (gcochra1@gmu.edu), 4400 University Dr., MS 3F2, Fairfax, VA 22030,
and **Thomas Wanner**. *A Modified Algorithm for Verification of Homology Computations of
Nodal Domains.*

Homology provides a useful tool in studying the patterns resulting from modeling. If the patterns result from the nodal domains of real-valued functions, a natural question to ask is if the homology computed is the actual homology. We will present a modified algorithm that correctly computes the homology of 1 and 2 dimensional nodal domains. Using this algorithm, we will present the results from simulations to get averaged homology computations of random functions. We will also use this algorithm to compute the homology of time-dependent solutions of the Cahn-Hilliard equation. (Received July 28, 2010)