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**Ko-Shin Chen\*** ([koshchen@indiana.edu](mailto:koshchen@indiana.edu)), Dept. of Math., Indiana U., 831 E. Third St., Bloomington, IN 47405, and **Peter Sternberg** ([sternber@indiana.edu](mailto:sternber@indiana.edu)), Dept. of Math., Indiana U., 831 E. Third St., Bloomington, IN 47405. *Dynamics of Ginzburg-Landau and Gross-Pitaevskii Vortices on Manifolds.*

In this talk we consider the dissipative heat flow and conservative Gross-Pitaevskii dynamics associated with the Ginzburg-Landau energy posed on a 2-manifold. We will show that in the  $\varepsilon \rightarrow 0$ , the vortices of the solution to these two problems evolve according to the gradient flow and Hamiltonian point-vortex flow respectively, associated with the renormalized energy. For the heat flow on a sphere, we will also present an annihilation result for the limiting system of ODE's and will derive some weighted energy identities. (Received August 10, 2013)