1057-49-297 **Andres A. Contreras*** (ancontre@indiana.edu), 2200 Lingelbach ln, Apt. 1202, Bloomington, IN 47408. *Ginzburg-Landau on thin shells and manifolds subject to an arbitrary external field.*

The Ginzburg-Landau energy in the presence of an external field when the superconducting sample occupies a thin neighborhood of a bounded compact manifold without boundary is considered. The results presented include Gamma-convergence of the functionals for small thickness to one posed on the manifold, construction of symmetric vortex solutions and determination of the first critical field H_{c1} for large values of the Ginzburg-Landau parameter. In the case of a simply connected surface of revolution and a constant and vertical applied field, the exact number of vortices present in minimizers is obtained for fields slightly above H_{c1}. This is joint work with Peter Sternberg. (Received January 25, 2010)