1057-35-393 **Patricia Bauman*** (bauman@math.purdue.edu), Department of Mathematics, Purdue University, 150 North University Street, West Lafayette, IN 47907. *Stable Solutions to the Lawrence-Doniach Equations in Tilted Magnetic Fields.*

We consider minimizers to the Lawrence-Doniach energy for layered superconductors with nonlinear Josephson coupling which is used to model a large class of superconductors. When the exterior magnetic field is nearly parallel to the layers and the Josephson constant is sufficiently small, we show that the global minimizer has no vortices in the layers. We estimate the upper critical magnetic fields in different directions, and show that it is inversely proportional to the sine of the angle between the applied field and the layers. We identify the pattern of the order parameters in this case. (Received January 26, 2010)