1092-35-200 **Patricia Bauman*** (bauman@math.purdue.edu), 150 No. University Street, Dept. of Mathematics, West Lafayette, IN 47907, and **Guanying Peng** (gpeng@math.purdue.edu), 150 No. University Street, West Lafayette, IN 47907. *Analysis of the Lawrence-Doniach Model for Superconductivity in Perpendicular Applied Magnetic Fields.* Preliminary report.

We analyze minimizers of the Lawrence-Doniach energy for layered superconductors in a bounded generalized cylinder, $\Omega \times (0, L)$, with Josephson coupling between the layers. This model has been used to model high-temperature superconductors. For an applied magnetic field $h_e \vec{e}_3$ that is perpendicular to the layers with $|\ln \epsilon << h_e << \epsilon^{-2}$ as $\epsilon \to 0$, where ϵ is the reciprocal of the Ginzburg-Landau parameter, we prove an asymptotic formula for the minimum Lawrence-Doniach energy as ϵ and the interlayer distance s tend to zero. Under appropriate assumptions on s versus ϵ we establish comparison results between the minimum Lawrence-Doniach energy and the minimum anisotropic Ginzburg-Landau energy. (Received August 09, 2013)