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Guanying Peng* (penggg@ucmail.uc.edu), Department of Mathematical Sciences, University of Cincinnati, Cincinnati, OH 45221-0025. *Gamma-convergence for an anisotropic superconductivity model with magnetic fields*. Preliminary report.

We analyze minimizers of the Lawrence-Doniach energy for layered superconductors occupying a bounded generalized cylinder, $\Omega \times (0, L)$, in \mathbb{R}^3 , where Ω is a bounded simply connected smooth domain in \mathbb{R}^2 . For an applied magnetic field $\vec{H}_{ex} = h_{ex}\vec{e}_3$ that is perpendicular to the layers with $h_{ex} \sim |\ln \epsilon|$ as $\epsilon \rightarrow 0$, where ϵ is the reciprocal of the Ginzburg-Landau parameter, we prove compactness results for various physical quantities of energy minimizers, and derive a Gamma-limit of the Lawrence-Doniach energy as ϵ and the interlayer distance tend to zero, under the additional assumption that the layers are weakly coupled. (Received July 19, 2016)