Bean's critical state model
for anisotropic hard superconductors

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Abstract: The coarse-grained electrodynamics in a long cylindrical hard superconductor can be described by the Bean's critical state model. The equations describing the evolution of the magnetic field $\vec{H}$ and of the electric field $\vec{E}$ inside the superconductor are solved using a quasistatic approximation based on a variational approach proposed by Badía and López. I shall show that $\vec{H}$ and $\vec{E}$ admit an explicit representation in terms of geometric quantities related to the cross-section of the superconductor. Our technique can also be applied in the case of an anisotropic behavior of the sample.

Joint work with: A. Malusa