Introduction to Superconductivity
Exercise Sheet 5

Discussion date: 22 and 29 October 2014

Exercise 1:   Programming: Domain wall in the Ginzburg-Landau formalism.

In the lecture you discussed the domain wall for $\kappa \ll 1$. Here we want to find the solution for general κ numerically. The exercise spans two weeks with an intermediate discussion.

Consider a domain wall interpolating between a normal metal and a superconductor.

$\boxed{\text{week 1}}$ (a) Solve the case $\kappa \ll 1$, which was already discussed in the lecture, numerically.
   Check: Compare your numerical solution to the analytical solution from the lecture.

   (b) Set up the boundary value problem for general κ, i.e. including the magnetic field.

$\boxed{\text{week 2}}$ (c) Solve the full boundary value problem for general κ numerically.