Identification of a discontinuous coefficient in semiconductor equations

Antonio Leitao
Mathematics, Federal Univ of St Catarina
aleitao@mtm.ufsc.br

Abstract

In this talk we consider inverse problems related to stationary drift-diffusion equations modeling semiconductor devices. In this context we analyze several identification problems corresponding to different types of measurements, where the parameter to be reconstructed is an inhomogeneity in the PDE model, the so-called em doping profile.

The precise implantation of the doping profile is crucial for the desired performance of semiconductor devices. In many applications, there is substantial interest in replacing expensive laboratory testing by numerical simulation and non-destructive testing, in order to minimize manufacturing costs of semiconductors as well as for quality control. The identification of the doping profile from indirect measurements is called an inverse doping profile problem.