1012-35-61 **Mikko Salo*** (mikko.salo@helsinki.fi), Department of Mathematics and Statistics, University of Helsinki, P.O. Box 68, FI-00014 Helsinki, Finland. *Reconstructing a magnetic field from boundary measurements.*

We consider the inverse problem of recovering the coefficients of a magnetic Schrödinger operator from boundary measurements given by the Dirichlet to Neumann map. This is similar to the inverse conductivity problem of Calderón, where one wishes to determine the electrical conductivity of a body from voltage and current measurements at the boundary. The main point in our result is that one can recover a nonsmooth first order term (the magnetic field) from boundary measurements in a constructive way, in dimensions three and higher.

Earlier results for this problem show unique determination of the magnetic field, but they are not constructive. A constructive algorithm for Calderón's inverse conductivity problem is due to Nachman, and we extend this algorithm to the case of first order terms. The main ingredients in the proof are a weighted L^2 estimate based on symbol smoothing and semiclassical pseudodifferential calculus, and the inversion of a certain nonlinear Fourier transform. (Received September 02, 2005)