Determination of Potential in Schrödinger Equation from Measurement on a Part of the Boundary

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Abstract. We study a linear time dependent Schrödinger equation with an unknown potential depending on the space variable only. We try to determine the potential from measurement of the flux of the soution through a surface gamma during a time T. We get uniqueness and stability results on the potential when the problem is set in a bounded domain with Dirichlet boundary condition and under geometrical hypothesis on the open subset gamma of the boundary. The tools we developed may also be usefull to work on control or inverse problem for more complicated systems, still based upon Schrödinger equation, which arise in the modelling of quantum chemistry situation.

Joint work with Jean-Pierre Puel