1012-35-189 **Helena C McGahagan\*** (`helena@math.ucsb.edu`), Department of Mathematics, South Hall, Room 6607, University of California, Santa Barbara, CA 93106. *Local Existence and Uniqueness of Schrödinger Maps.*

Schrödinger maps are solutions of a highly nonlinear PDE with geometric structure arising from the constraint that the solutions must lie on a given manifold. For example, the well-known Landau-Lifshitz equation, describing ferromagnetism, is the special case in which the target is the sphere.

PDE techniques that incorporate the geometry allow us to prove both the existence and uniqueness of Schrödinger maps. This talk will consider general target manifolds and discuss local well-posedness in the best Sobolev spaces possible while using only energy estimates to control the norm of the solution. (Received September 20, 2005)