Jonathan M. Rosenberg* (jmr@math.umd.edu), Department of Mathematics, University of Maryland, College Park, MD. First steps towards a noncommutative theory of nonlinear elliptic equations. Preliminary report.

The connection between linear elliptic operators and interesting topics in operator algebras is by now well established. In this talk, we will explore a few examples that seem to point toward an interesting theory of nonlinear elliptic equations and calculus of variations over $C^*$-algebras, at least in the case of some equations of geometric interest, such as the harmonic map equation. Some of this work is joint with Mathai Varghese (Adelaide). (Received September 19, 2007)