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**Jonathan M. Rosenberg\*** ([jmr@math.umd.edu](mailto: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)