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**Michael T Anderson\*** ([anderson@math.sunysb.edu](mailto:anderson@math.sunysb.edu)), Department of Mathematics, SUNY at Stony Brook, Stony Brook, NY 11794. *Boundary value problems for Einstein metrics.*

We'll first discuss the following result: the space of solutions to the (Riemannian) Einstein equations, possibly coupled to other fields, is a smooth Banach manifold, for which the natural boundary maps (Dirichlet, Neumann, mixed) are Fredholm of index 0. This holds in all dimensions. Applications will then be discussed on the global solvability of these boundary value problems in the case of static vacuum Einstein metrics in dimension 4. One motivation for this is Bartnik's static extension conjecture. (Received January 06, 2007)