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M. N. Nkashama* (nkashama@math.uab.edu), Department of Mathematics, University of Alabama at Birmingham, Birmingham, AL 35294-1170, and **N. Mavinga** (mavinga@swarthmore.edu), Department of Mathematics & Statistics, Swarthmore College, Swarthmore, PA 19081-1390. *Nonresonance on the boundary and strong solutions of elliptic equations with nonlinear boundary conditions.*

We deal with the solvability of linear second order elliptic partial differential equations with nonlinear boundary conditions by imposing asymptotic nonresonance conditions of nonuniform type with respect to the Steklov spectrum on the boundary nonlinearity. Unlike some recent approaches in the literature for problems with nonlinear boundary conditions, we cast the problem in terms of nonlinear compact perturbations of the identity on appropriate *trace spaces* in order to prove the existence of strong solutions. The proofs are based on *a priori* estimates for possible solutions to a homotopy on suitable trace spaces and topological degree arguments. (Received July 31, 2011)