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Topological methods for nonlinear boundary value problems

In this talk, I will introduce the class of (a, q)-stably solvable maps and their properties. New results for operators in the form LF, where L is a bounded linear operator and F is nonlinear are proved. This class of maps is important in applications as many differential equations can be written as $LF(u) = u$. I will also discuss three different approaches, the (a, q)-stably solvable maps, fixed point index and iterative methods in studying nonlinear boundary value problems.