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*Nonlinear spectra and related maps: generalizations and applications*

I will introduce the nonlinear spectrum defined by three European mathematicians (Furi, Martelli and Vignoli), and its further generalizations in different directions. Classes of nonlinear maps related to the nonlinear spectra such as stably solvable operators, 0-epi maps,  $(a, q)$ -stably solvable operators, L-stably solvable operators, their properties and applications will be discussed. I will also present some new results on nonlinear operators that can be decomposed into a linear operator and a nonlinear map. Applications to existence of solutions for some boundary value problems are obtained.