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On graph measures in Banach spaces and description of essential spectra of multidimensional transport equation. (English) Zbl 1266.47072

Summary: In this paper, we define new measures called, respectively, graph measure of noncompactness and graph measure of weak noncompactness. Moreover, we apply the obtained results to discuss the import of some perturbation results on the behavior of essential spectra of such closed densely defined linear operators on Banach spaces. These results are exploited to investigate the essential spectra of a multidimensional neutron transport operator on $L_1$ spaces.

MSC:
47H08 Measures of noncompactness and condensing mappings, $K$-set contractions, etc.
47A53 (Semi-) Fredholm operators; index theories
47A55 Perturbation theory of linear operators

Keywords:
measures of noncompactness; measures of weak noncompactness; Banach spaces; Fredholm operators; essential spectra

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