Povzetek

V prvem poglavju so zbrani pomožni izreki, ki niso neposredno povezani s temo diplome. V drugem poglavju obravnavamo t. i. *Hausdorffovo mero nekompaktnosti* na Banachovih prostorih. To poglavje je v bistvu priprava za tretje poglavje, v katerem obravnavamo tri različne mere nekompaktnosti operatorjev na Banachovih prostorih, od katerih je ena inducirana s Hausdorffovo mero nekompaktnosti. Od drugih dveh mer nekompaktnosti je ena poznana kot *bistvena norma*, druga pa je podana s predpisom

$$\|A\|_m = \inf\{\|A|_M\| : \operatorname{codim} M < \infty\}.$$

Podane so različne povezave med temi tremi merami nekompaktnosti, o katerih se da še posebej veliko povedati v primeru, ko ima prostor, v katerega operator slika, Schauderjevo bazo.

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Ključne besede: mere nekompaktnosti, kompaktni operatorji, Banachovi prostori, Schauderjeva baza

Abstract

The first chapter includes lemmas and theorems that are not directly connected to the main theme, but they are used to develop our theory. Properties of *Hausdorff measure of noncompactness* on Banach spaces are discussed in the second chapter. This chapter is in fact a preliminary to the third chapter, where three different measures of noncompactness for operators on Banach spaces are investigated, from which one of them is induced by Hausdorff measure of noncompactness. From the other two one is known as *the essential norm* while the other is given by

$$\|A\|_m = \inf\{\|A|_M\| : \operatorname{codim} M < \infty\},$$

where A is a bounded linear operator from Banach space X to Banach space Y. Different connections between these three measures of noncompactness are given. In particular, interesting results about these measures can be obtained in the case when Y has a Schauder basis.

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Keywords: measures of noncompactness, compact operators, Banach spaces, Schauder basis

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