

Approximation numbers of Sobolev embeddings of radial functions on isotropic manifolds

Leszek Skrzypczak and Bernadeta Tomasz

(Communicated by Hans Triebel)

2000 Mathematics Subject Classification. 46E35, 47B06.

Keywords and phrases. Approximation numbers, Sobolev embeddings, radial functions.

Abstract. We regard the compact Sobolev embeddings between Besov and Sobolev spaces of radial functions on noncompact symmetric spaces of rank one. The asymptotic formula for the behaviour of approximation numbers of these embeddings is described.

1. Introduction

Approximation numbers measure the closeness by which a bounded operator may be approximated by linear maps of finite range, whereas entropy numbers measure compactness of the operator by means of finite coverings of an image of the unit ball. Both, approximation and entropy numbers, of compact Sobolev embeddings between function spaces of Sobolev and Besov type on the Euclidean case have been investigated by several authors: D. E. Edmunds and H. Triebel cf. [4], [5], D. Haroske and H. Triebel [10], [11], D. Haroske [9], and A.M. Caetano [1]. Some of these results are described in [6], where one can find also the applications to the spectral theory of the pseudo-differential operators.