

# An introduction to Narrow Operators

Mikhail M. Popov\*

14.11.2013

## Abstract

Most classes of operators that are not isomorphic embeddings are characterized by some kind of a smallness condition. Narrow operators are those operators defined on function spaces that are small at  $\{-1,0,1\}$ -valued functions, e.g. compact operators are narrow. The original motivation to consider such operators came from theory of embeddings of Banach spaces, but since then they were also applied to the study of the Dugavet property and to other geometrical problems of functional analysis. The question of when a sum of two narrow operators is narrow, has led to deep developments of the theory of narrow operators, including an extension of the notion to vector lattices and investigations of connections to regular operators.

---

\*Faculty of Mathematics and Informatics, Yuriy Fedkovich National University Chernivtsi, Ukraine