

Lowen, R.

Kuratowski's measure of non-compactness revisited. (English) Zbl 0672.54025
Q. J. Math., Oxf. II. Ser. 39, No. 154, 235-254 (1988).

The author earlier introduced the category of approach spaces with contractions, which contains the topological spaces with continuous maps as a bireflective and bicoreflective subcategory and the extended pseudo- quasi-metric spaces with non-expansive maps as a bicoreflective subcategory. A measure of non-compactness is defined for approach spaces and is shown to be effectively equivalent to the Kuratowski measure of non-compactness for extended pseudo-metric spaces. For X topological, $m(X) = 0$ if and only if X is compact. For X extended pseudo-quasi-metric, $m(X) = 0$ if and only if X is totally bounded. An arbitrary product (in the category of approach spaces) of totally bounded pseudo-quasi-metric spaces is totally bounded.

Reviewer: A.J.Klein

MSC:

54E50 Complete metric spaces
54B30 Categorical methods in general topology
54D30 Compactness

Cited in **3** Reviews
Cited in **18** Documents

Keywords:

extended p-q metrics; total boundedness; approach spaces; extended pseudo-quasi-metric spaces; non-expansive maps; bicoreflective subcategory; measure of non-compactness

Full Text: [DOI](#)