MAPPING THEOREMS ON k-SEMISTRATIFIABLE SPACES*

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Abstract. In this paper the mapping properties on k-semistratifiable spaces are discussed. The main results are

(1) A closed map from a k-semistratifiable space is a compact-covering map.

(2) An open and compact image of a k-semistratifiable space is a σ-space.

(3) A perfect inverse image of a k-semistratifiable space is a k-semistratifiable space if and only if it has a KG-sequence.

1. Introduction

k-semistratifiable spaces as a generalization of stratifiable spaces and $\aleph$-spaces have many important properties [6, 10, 14–16]. The method by maps is a powerful tool for studing generalized metric spaces. In this paper we shall establish a closed mapping theorem, an open and compact mapping theorem, and a perfect inverse mapping theorem on k-semistratifiable spaces, which deepen some known results in [1, 3, 6, 11, 14], and answers the question 4.6 in [8].

In this paper all spaces are regular and T_1, and a topology for a space X is denoted by $\tau(X)$. Maps are continuous and onto. N denotes the set of all natural numbers.