Ivan Ivanšić

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In: Josef Novák (ed.): General topology and its relations to modern analysis and algebra IV, Proceedings of the fourth Prague topological symposium, 1976, Part B: Contributed Papers. Society of Czechoslovak Mathematicians and Physicist, Praha, 1977. pp. 178.

Persistent URL: http://dml.cz/dmlcz/700641

EMBEDDING COMPACTA UP TO SHAPE

I. IVANŠIĆ

Zagreb

This is the abstract of [1] in which we prove some results on embedding of metric compacta up to shape into Euclidean spaces. Namely, we find some sufficient conditions when a pointed compactum X of the shape dimension $Sd(X,x)$ can be embedded up to shape into E^q for $q < 2Sd(X,x) + 1$, where embedding of X into Y up to shape means that there is a subspace $X' \subset Y$ of the same shape as X. The main result is

<u>Theorem</u> 1. Let M be a PL manifold without boundary of dimension q and let $\{(P_k, x_k), p_{k,k+1}\}$ be a tower of polyhedra such that

(i) all P_k are of dimension $\leqslant n$, $q - n \geqq 3$;

(ii) all bonding maps are $(2n - q + 1)$-connected, and

(iii) there is a $(2n - q + 1)$-connected map $p_{01} : P_1 \to M$.

Then there is a pointed compactum $Y \subset M$ such that $Sh(Y,y) = Sh \varprojlim \{(P_k,x_k), p_{k,k+1}\}$.

Using Theorem 1 and some other lemmas and stability theorems of D. A. Edwards and R. Geoghegan one gets

<u>Theorem</u> 2. If X is a pointed compactum, $Sd(X,x) = n$, which is r-shape connected, $n - r \geqq 2$, then (X,x) can be embedded up to shape into E^{2n-r+1}.

<u>Theorem</u> 3. Let X be a pointed compactum which is pointed shape dominated by a polyhedron and let $Sd(X,x) = n \geqq 3$. If (X,x) has trivial shape groups for $1 \leqslant i \leqslant r$, $n - r \geqq 3$, then (X,x) can be embedded up to shape into E^{2n-r}.

Reference

[1] I. Ivanšić: Embedding compacta up to shape. Submitted to Bull. Acad. Polon. Sci. Sér. Sci. Math. Astronom. Phys.