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Research Announcement:
CONTRACTIBLE DENDROIDS AND
EMBEDDINGS IN THE PLANE

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CONTRACTIBLE DENDROIDS AND EMBEDDINGS IN THE PLANE

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By a *continuum* we mean a compact connected metric space. A *dendroid* is a hereditarily unicoherent and arc-wise connected continuum. By a *fan* we understand a dendroid which contains at most one branch-point and we call this point the *vertex* of the fan. The following theorems have been proved:

Theorem 1. Let X be a fan which is locally connected at its vertex, then X is embeddable in the plane.

Theorem 2. Let X be a contractible fan, then X is locally connected at its vertex.

Corollary 3. Let X be a contractible fan, then X is embeddable in the plane.

We say that a space X is *monotone contractible* provided there exists a contraction $H: X \times I \rightarrow X$ such that $H|X \times \{t\}$ is monotone for each $t \in I$. Using some results of (4) we provide an internal characterization of contractibility for fans and prove:

Theorem 4. Let X be a fan, then the following are equivalent:

- i. X is contractible.*
- ii. X is monotone contractible.*

Remarks. Theorem 1 gives a solution to problem 1015 of

(3) and Corollary 3 answers a question (problem 786) of (2). We also answer a question raised in (1) and show that none of the above can be generalized to the class of dendroids. A complete version of this paper will appear elsewhere.

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