

Rubinstein, J. Hyam; Wang, Shicheng π_1 -injective surfaces in graph manifolds. (English) [Zbl 0916.57001](#)

Comment. Math. Helv. 73, No. 4, 499-515 (1998).

Let $f : S \rightarrow M$ be a π_1 -injective, least area, proper immersion of a compact orientable surface with negative Euler characteristic into a compact orientable irreducible 3-manifold with infinite fundamental group. The authors find an f as above such that the preimage of $f(S)$ in the universal cover of M contains no disjoint pair of planes; thus $f(S)$ does not have the k -plane property for any k , and no finite cover $P : \tilde{M} \rightarrow M$ of M contains a finite cover \tilde{S} embedded by $\tilde{f} : \tilde{S} \rightarrow \tilde{M}$ and covering $f : S \rightarrow M$. Other results on graph manifolds are obtained as well.

Reviewer: [Lee P. Neuwirth \(Princeton\)](#)**MSC:**[57M10](#) Covering spaces and low-dimensional topology[57N10](#) Topology of general 3-manifolds (MSC2010)Cited in **3** Reviews
Cited in **24** Documents**Keywords:**[graph manifold](#); [immersion](#); [3-manifold](#); [covering](#)**Full Text:** [DOI](#)