One-dimensional non-Hausdorff manifolds and CW complexes

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We study one-dimensional non-Hausdorff manifolds that are "similar" to graphs with split vertices [1, 2, 3]. It is shown that if M is a connected one-dimensional non-Hausdorff manifold such that the set of its "non-Hausdorff" points is locally finite, and each component of its complement has a countable base, then there exists a quotient map $\pi\colon M \to \Gamma$ onto an open one-dimensional CW complex, which maps the non-Hausdorff points of M to the vertices of Γ.

Moreover, Γ is the minimal Hausdorff quotient of M, that is, for every continuous map $f\colon M \to N$ into a Hausdorff space N, there exists a unique continuous map $\hat{f}\colon \Gamma \to N$ such that $f = \hat{f} \circ \pi$.

References

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