A characterization of cotorsion-free groups in terms of homomorphisms from fundamental groups of Peano continua

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Given a connected and locally path-connected topological space X, we endow the fundamental group $\pi_1(X,x)$ with the coarsest topology such that $\pi_1(X,x)$ is a topological group and such that a subgroup H is open if (and only if) there is a covering projection $p : (\widetilde{X},\widetilde{x}) \to (X,x)$ with $p_\#\pi_1(\widetilde{X},\widetilde{x}) = H$. We call a group G *homomorphically Hausdorff relative to X* if for every homomorphism $h : \pi_1(X,x) \to G$, the image of h (viewed as a quotient map) is Hausdorff.

Main Theorem: An abelian group G is cotorsion-free if and only if G is homomorphically Hausdorff relative to every Peano continuum.