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Covering morphisms of topological internal groupoids. (English) Zbl 07419738

Summary: Let $X$ be a topological group with operations whose underlying space has a universal cover. Then the fundamental groupoid $\pi X$ becomes a topological internal groupoid, i.e., an internal groupoid in the category of topological groups. In this paper, we prove that the slice category $\text{Cov}_{\text{TC}}/X$ of covering morphisms $p : \tilde{X} \to X$ of topological groups with operations in which $\tilde{X}$ has also a universal cover and the category $\text{Cov}_{\text{Gpd}(\text{TC})}/\pi X$ of topological internal groupoids based on $\pi X$ are equivalent. We also prove that for a topological internal groupoid $G$, the category $\text{Cov}_{\text{Gpd}(\text{TC})}/G$ of covering morphisms of topological internal groupoids based on $G$ and the category $\text{ACT}_{\text{Gpd}(\text{TC})}/G$ of topological internal groupoid actions of $G$ on topological groups with operations are equivalent.

MSC:
22A22 Topological groupoids (including differentiable and Lie groupoids)
20L05 Groupoids (i.e. small categories in which all morphisms are isomorphisms)

Keywords:
covering groupoid; internal groupoids; topological internal groupoids

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References:
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