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Title: Descending maps between slashed tangent bundles

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Suppose $TM \setminus \{0\}$ and $T\widetilde{M} \setminus \{0\}$ are slashed tangent bundles of smooth manifolds M and \widetilde{M} , respectively. In this paper we first give a differential-topological characterization of those diffeomorphisms $F : TM \setminus \{0\} \rightarrow T\widetilde{M} \setminus \{0\}$ that can be written as $F = (D\phi)|_{TM \setminus \{0\}}$ for a diffeomorphism $\phi : M \rightarrow \widetilde{M}$. When this is the case we say that F *descends*. Using the characterization we obtain two geometric results. First, if M is equipped with two sprays, we obtain sufficient conditions that imply that F descends to a totally geodesic map. Second, if M has two Riemann metrics, we obtain sufficient conditions for F to descend to an isometry.

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