

**Ghahraei, E.**

**Global homeomorphism of nonsmooth mappings using pseudo-jacobian on Riemannian manifolds.** (English) [Zbl 07193609](#)

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*B. Pourciau* [*J. Math. Anal. Appl.* 131, No. 1, 170–179 (1988; [Zbl 0666.49004](#))] addressed the global inversion of locally Lipschitz mappings in  $\mathbb{R}^n$  by using Clarke generalized Jacobian and obtained a variant of the Hadamard integral condition. Jaramillo, Madiedo and Sánchez-González [*J. A. Jaramillo et al., J. Convex Anal.* 20, No. 4, 1127–1146 (2013; [Zbl 1281.49009](#))] investigated the global invertibility of locally Lipschitz mappings between Finsler manifolds by making use of the Clarke generalized differential. Recently they studied the problem of global inversion of continuous mapping  $f : \mathbb{R}^n \rightarrow \mathbb{R}^n$  by putting pseudo-Jacobian matrices to use in [*J. A. Jaramillo et al., Nonlinear Anal., Theory Methods Appl., Ser. A, Theory Methods* 108, 57–65 (2014; [Zbl 1297.26021](#))].

The principal objective in this paper is to make use of techniques of nonsmooth analysis to get a characterization of global homeomorphism of a continuous mapping between Riemannian manifolds which may be non-locally Lipschitz and for which the Clarke generalized differential is not necessarily defined. To this end, the author exploits the concept of pseudo-Jacobian.

Reviewer: [Hirokazu Nishimura \(Tsukuba\)](#)

**MSC:**

[58C20](#) Differentiation theory (Gateaux, Fréchet, etc.) on manifolds

[49J52](#) Nonsmooth analysis

[47H05](#) Monotone operators and generalizations

**Keywords:**

[pseudo-Jacobian](#); [global homeomorphism](#); [Mordukhovich coderivative](#); [Riemannian manifolds](#)

**Full Text:** [DOI](#)

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