Info

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Riemannian manifolds with non-positive sectional curvature *AKA* Cartan-Hadamard manifolds

(Cartan-Hadamard) Let (M, g) be a complete Riemannian manifold with non-positive sectional curvature $\kappa_g \leq 0$ then for any $p \in M$ the exponential map

$$\exp_p : T_pM \to M$$

is a **covering map**. In particular if M is simply connected then $\exp_p$ is a diffeomorphism.

universal cover

> **Proposition:** Let (M, g) be a complete Riemannian manifold. Then the following are equivalent
>
> 1. every geodesic in (M, g) is (globally) **length-minimizing**
> 2. every unit speed geodesic in (M, g) is a minimal geodesic
> 3. every pair of points in (M, g) is joined by a **unique** minimal geodesic segment
> 4. the exponential
>
> $$\exp_p : T_pM \to M$$
>
> is a diffeomorphism for all $p \in M$

Current note has 1 direct children and 1 total descendants.

And it has 14 siblings.