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Diagonal Lift in the Cotangent Bundle and its Applications

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Abstract: The purpose of this paper is to define a diagonal lift $\mathcal{D}g$ of a Riemannian metric g of a manifold M_n to the cotangent bundle $T^*(M_n)$ of M_n , to associate with $\mathcal{D}g$ an Levi-Civita connection of $T^*(M_n)$ in a natural way and to investigate applications of the diagonal lifts.

Key Words: Cotangent bundle, Riemannian metric, diagonal lift, Levi-Civita connection, B-manifold, Killing vector field, geodesic.

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