

Lagrange-Finsler Geometry and Foliations

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Lagrangians related to submersions and foliations, which are analogous to Riemannian submersions and Riemannian foliations respectively are studied. One prove that a bundle-like Lagrangian, a transverse hyperregular Lagrangian, a hyperregular Lagrangian foliated cocycle or a geodesic orthogonal property are equivalent data for a foliation. A conjecture of E. Ghys is proved in a more general setting than that of Finslerian foliations: a foliation that has a transverse positively definite Lagrangian is a Riemannian foliation. One extend also a result of Miernowski and Mozgawa on Finslerian foliations, proving that the natural lift to the normal bundle of a Lagrangian foliation that has a transverse positively definite Lagrangian is a Riemannian foliation.

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