

# Anisotropic connections and Finsler Geometry

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Anisotropic connections in a manifold  $M$  can be defined analogously to classical affine connections in a manifold but with the particularity that the derivative depends on the direction  $v \in TM$ . They are good to study structures with a strong dependence on direction as Sprays and Finsler metrics. Geodesics of a Finsler metric can be described as auto-parallel curves of an anisotropic connection. Indeed, we will show that it is possible to define a Levi-Civita anisotropic connection associated with a Finsler metric. We will also show how to define the derivative of an anisotropic tensor (a tensor which depends on the direction rather than on the points of the manifold) and how to define the curvature tensor of an anisotropic connection, giving some results as Bianchi Identities and formulas relating the curvature of two different anisotropic connections.