Generalisation of the Riemannian line-element.

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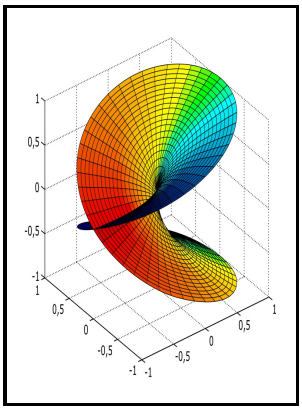

Description: -
-generalisation of the Riemannian line-element.
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Notes: Reprinted from the Transactions of the American Mathematical Society, Vol. 27, No. 1, p. 61-67.
This edition was published in 1925

Tags: #Riemann #geometry

Information metric from Riemannian superspaces

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Line element

Recently, a Finslerian type geometrization of quantum mechanics that describes the time evolution of particles as geodesic lines in a curved space was proposed in , in which the curvature of the Finsler space is induced by the quantum potential. The definitions of geodesic lines in various spaces depend on the particular structure metric, line element, linear connection on which the geometry of the particular space is based. Author: Takashi Sakai Publisher: American Mathematical Soc.

Václav Hlavatý on intuition in Riemannian space

Tensor calculus is a generalization of vector calculus, and comes near of being a universal language in physics. However, this hope had not been materialized as pointed out by M Gromov in his 1985 article published in Asterisque.

Václav Hlavatý on intuition in Riemannian space

Geodesic lines are a special case of such curves. This new edition introduces and explains the ideas of the parabolic methods that have recently found such spectacular success in the work of Perelman at the examples of closed geodesics and harmonic forms. We have defined a Riemannian manifold.

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We find that the metric solution of the superspace establishes a connexion between the Fisher metric and its quantum counterpart, corroborating early conjectures by Caianiello et al. Let the speed be h-unit speed. On the other hand the manifold of pure quantum states can be regarded as a complex projective space endowed with the unitary-invariant Fubini- Study metric.

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The results of measurements on large segments, however, exhibit a considerable deviation from the laws of plane geometry. Thus, a Riemannian space R may be analytically defined as an n-dimensional manifold with a differential quadratic form defined at every point. A Finslerian approach to classical mechanics was developed in ; ; ; , respectively.

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Riemann, who set forth its fundamentals in 1854. An analogous interpretation has also been given to motion in a field of forces having a potential see LEAST CURVATURE, PRINCIPLE OF. The estimation of the number v of closed geodesics of a space R is of interest, for example, for the description of periodic motions in the many-body problem of mechanics.

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