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The Geometry of the Kepler orbit / the perturbed Kepler orbit on Maupertuis Manifolds by minimizing the Scalar of the Riemann Curvaturte Tensor, aspects of the Kustaanheimo-Stiefel elements in Satellite Geodesy

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D. Hilbert and A. Einstein in 1916 derived the field equations of Gravitation from the functional "Scalar Curvature of the Riemann Curvature Tensor" in Spacetime. Ever since, Physicists as well as Geodesists have tried to derive the Kepler orbit / the perturbed Kepler orbit from the variational concept minimizing the spatial scalar curvature of the Riemann Curvature Tensor. The Maupertuis Principle of Least Action was the basis to derive the Newton equations of motion of a mass point, namely in the gravitational force field interpreted as a Geodesic Flow in the Maupertuis Manifold. The Maupertuis Manifold is a conformally flat threedimensional manifold with the gravitational potential as the factor of conformality. Here we derive the Kepler orbit / the perturbed Kepler orbit from the immersion of different type of Maupertuis Manifolds. Finally, we establish the link to Kustaanheimo-Stiefel elements in orbit dynamics. An example is the orbit computation of GPS satellites by perturbation theory of first order.