

1100-30-123

Katrin Fassler, Anton Lukyanenko* (anton@lukyanenko.net) and **Kirsi Peltonen.**

Uniformly quasiregular mappings on sub-Riemannian manifolds.

A K -quasi-regular (QR) mapping in the plane is the composition of a K -quasi-conformal mapping with a complex-analytic mapping; in a more general context, one considers branched covers with dilatation bounded by K . While QR mappings of Riemannian spaces (especially \mathbb{R}^n) have been studied extensively, little is known about their properties for more general metric spaces.

We study QR mappings on sub-Riemannian (sR) metric spaces, focusing on the 3-sphere $S^3 \subset \mathbb{C}^2$ and its quotients the lens spaces. We prove the following:

1. Every lens space with its natural sR metric admits a uniformly quasi-regular mapping (i.e. a K -QR mapping with K -QR iterates).
2. Every UQR mapping of a sR manifold admits an invariant measurable conformal structure.

While the first result shows the existence of non-trivial QR mappings, the second indicates a degree of rigidity. (Received February 04, 2014)