# Intrinsic metrics under conformal and quasiregular mappings

By OONA RAINIO (Turku)

**Abstract.** The distortion of six different intrinsic metrics and quasi-metrics under conformal and quasiregular mappings is studied in a few simple domains $G \subsetneq \mathbb{R}^n$. The already known inequalities between the hyperbolic metric and these intrinsic metrics for points $x, y$ in the unit ball $\mathbb{B}^n$ are improved by limiting the absolute values of the points $x, y$, and the new results are then used to study the conformal distortion of the intrinsic metrics. For the triangular ratio metric between two points $x, y \in \mathbb{B}^n$, the conformal distortion is bounded in terms of the hyperbolic midpoint and the hyperbolic distance of $x, y$. Furthermore, quasiregular and quasiconformal mappings are studied, and new sharp versions of the Schwarz lemma are introduced.

OONA RAINIO
DEPARTMENT OF MATHEMATICS
AND STATISTICS
UNIVERSITY OF TURKU
FI-20014 TURKU
FINLAND