

QUASI-METRIC GEOMETRY: SMOOTHNESS AND CONVERGENCE RESULTS

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ABSTRACT

This thesis has two distinct yet related parts, the first pertaining to Geometry on quasi-metric spaces with emphasis on the Hausdorff outer-measure, the natural extension of the Gromov-Pompeiu-Hausdorff distance to quasi-metric spaces, and smoothness of quasi-metric spaces, and the second dealing with Euclidean Geometry, namely the role Geometry plays in analysis, particularly in the characterization of Lipschitz domains via cones, domains of class $C^{1,\omega}$, where ω is a modulus of continuity, via pseudo-balls, which includes Lyapunov domains, a sharp version of the Hopf-Oleinik Boundary Point Principle, and subsequently the Strong Maximum Principle.