

Rigidity properties of slice regular functions over the quaternions

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Abstract

The study of many aspects of the geometric theory of holomorphic functions relies upon rigidity properties such as the Schwarz Lemma, the Schwarz-Pick Lemma, the Landau-Toeplitz Theorem, the Cartan fixed point Theorems and upon boundary rigidity results like the Burns-Krantz theorem. In this talk I will present the extensions of some of these results to the class of slice regular functions over the quaternions. In the quaternionic setting, some of the statements and proofs are analogous to the complex ones, while some others resent the peculiarities of the new environment and are considerably different. These results also seem to indicate a new perspective for the study of invariant geometry and dynamical systems over the quaternions.