A CORRESPONDING VECTORIAL FORM OF DERIVATIVE OF BIQUATERNIONIC FUNCTIONS[*]

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Abstract

In this paper, we give the notation and properties of the vectorial form of biquaternions. The differential operators and calculations result from a modified multiplication with the vectorial form.

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1   Introduction

The ordinary biquaternions are named by Hamilton [3] in 1844. Since then, more developments of theories of biquaternions. Kravchenko [7] gave a review of some results obtained with quaternionic analysis and quaternionic reformulations for electromagnetic fields and for Dirac's spinors. Ward [9] discovered significant uses for the quaternion and Cayley number algebra in physics and gave various representations of certain topics in particularly relativity. Buchheim [1] extended properties of biquaternions contained an outline of a calculus devised by Clifford's sketch for the analytical treatment of the theory of screws. Girard [2] showed various physical covariance groups such as the Lorentz group, the general theory of relativity group and the conformal group related to the quaternion group. Sangwine et al. [8]