

Turkish Journal of Mathematics

Turkish Journal

of

Mathematics

Dual Quaternions in Spatial Kinematics in an Algebraic Sense

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Abstract: This paper presents the finite spatial displacements and spatial screw motions by using dual quaternions and Hamilton operators. The representations are considered as 4×4 matrices and the relative motion for three dual spheres is considered in terms of Hamilton operators for a dual quaternion. The relation between Hamilton operators and the transformation matrix has been given in a different way. By considering operations on screw motions, representation of spatial displacements is also given.

Key Words: Dual quaternions, Hamilton operators, Lie algebras

Turk. J. Math., **32**, (2008), 373-391.

Full text: [pdf](#)

Other articles published in the same issue: [Turk. J. Math., vol.32, iss.4.](#)