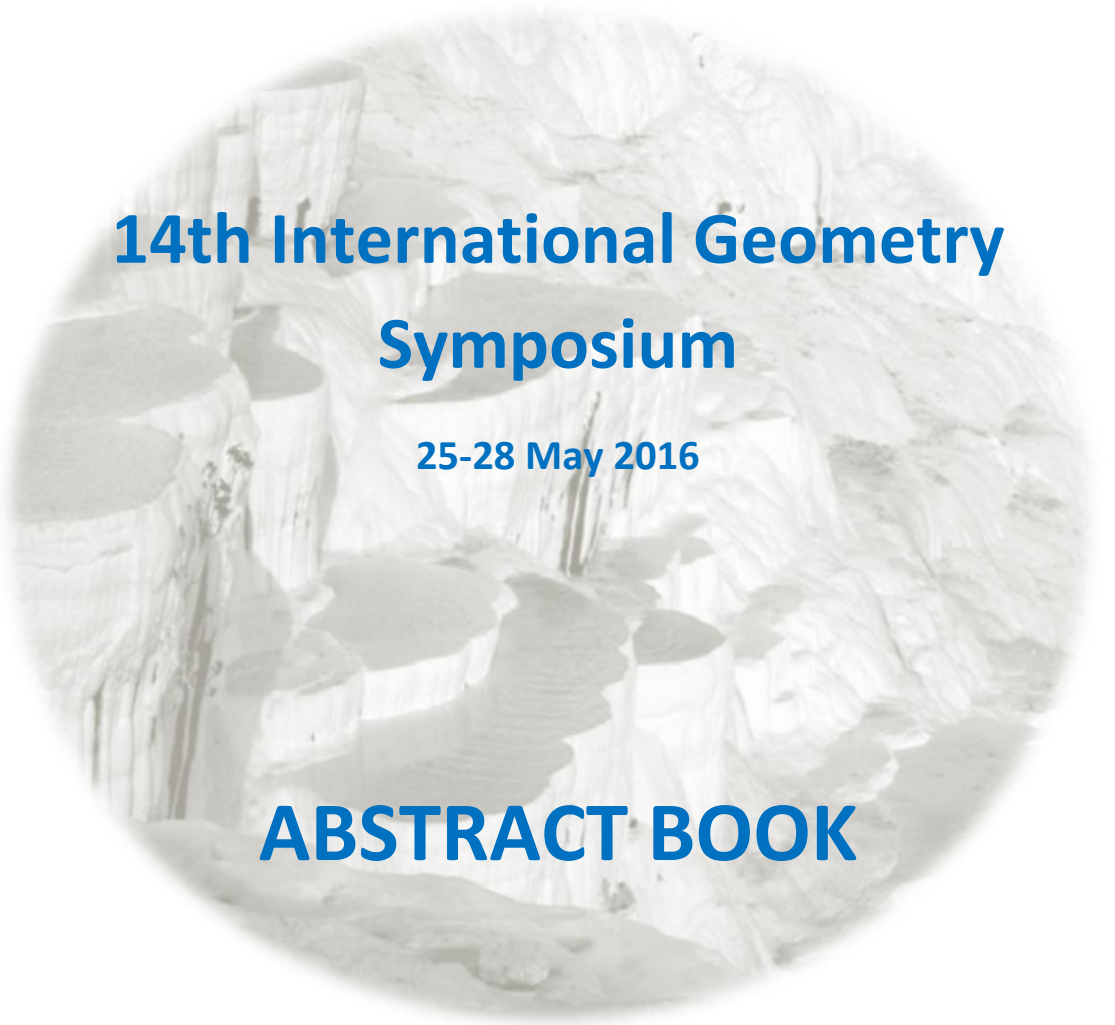


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Alper ÇAKIR

Getting an Hyperbolical Rotation Matrix by Using Householder's Method in 3-Dimensional Space

Hakan ŞİMŞEK[60], Mustafa ÖZDEMİR[61]

Abstract

Hyperbolical rotation is a linear map that represent hyperbolically the motion of a smooth object on the general hyperboloids $-a_1x^2 + a_2y^2 + a_3z^2 = \pm r^2, r \in \mathbb{R}$. In this paper, we use the Householder transformation in order to generate an hyperbolical rotation matrix which corresponds to hyperbolical rotation in 3-dimensional scalar product space.

Key Words: Hyperbolical Rotation Matrix, g-Householder Transformation, Scalar Product Space.

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[60] Akdeniz Üniversitesi, Fen Fakültesi, Matematik Bölümü, Merkez/Antalya, E-posta: hakansimsek@akdeniz.edu.tr

[61] Akdeniz Üniversitesi, Fen Fakültesi, Matematik Bölümü, Merkez/Antalya, E-posta: mozdemir@akdeniz.edu.tr

Hasimoto Surfaces in Minkowski 3-Space with Parallel Frame

Melek ERDOĞDU[64], Mustafa ÖZDEMİR[65]

Abstract

In this study, we investigate the Hasimoto surfaces in Minkowski 3-space. First, a great survey on the Hasimoto surfaces is given by using Frenet Frame. Then, Smoke Ring Equation is given by parallel frames. Finally, some differential geometric properties of Hasimoto surfaces are examined with parallel frames.

Key Words: Hasimoto surface, NLS Surface, Minkowski Space.

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[64] Necmettin Erbakan University, Faculty of Sciences, Department of Mathematics- Computer Sciences, 42090, Meram/Konya, E-mail:merdogdu@konya.edu.tr

[65] Akdeniz University, Faculty of Science, Department of Mathematics, 07070, Kampüs/Antalya, E-mail: mozdemir@akdeniz.edu.tr

Exponential of Split Quaternion Matrices

Mustafa ÖZDEMİR[70], **Melek ERDOĞDU**[71]

Abstract

The exponential of a matrix plays an important role in the theory of Lie groups. The main purpose of this study is to examine matrix groups over the split quaternions and the exponential map from their Lie algebras into the groups. Since the set of split quaternions is a noncommutative algebra, the way of computing the exponential of a matrix over the split quaternions is more difficult than calculating the exponential of a matrix over the real or complex numbers. Therefore, we give a method of finding exponential of a split quaternion matrix by its complex adjoint matrix.

Key Words: Quaternion, Split Quaternion, Quaternion Matrix.

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[70] Akdeniz University, Faculty of Science, Department of Mathematics, 07070, Kampüs/Antalya, E-mail: mozdemir@akdeniz.edu.tr

[71] Necmettin Erbakan University, Faculty of Sciences, Department of Mathematics- Computer Sciences, 42090, Meram/Konya, E-mail:merdogdu@konya.edu.tr