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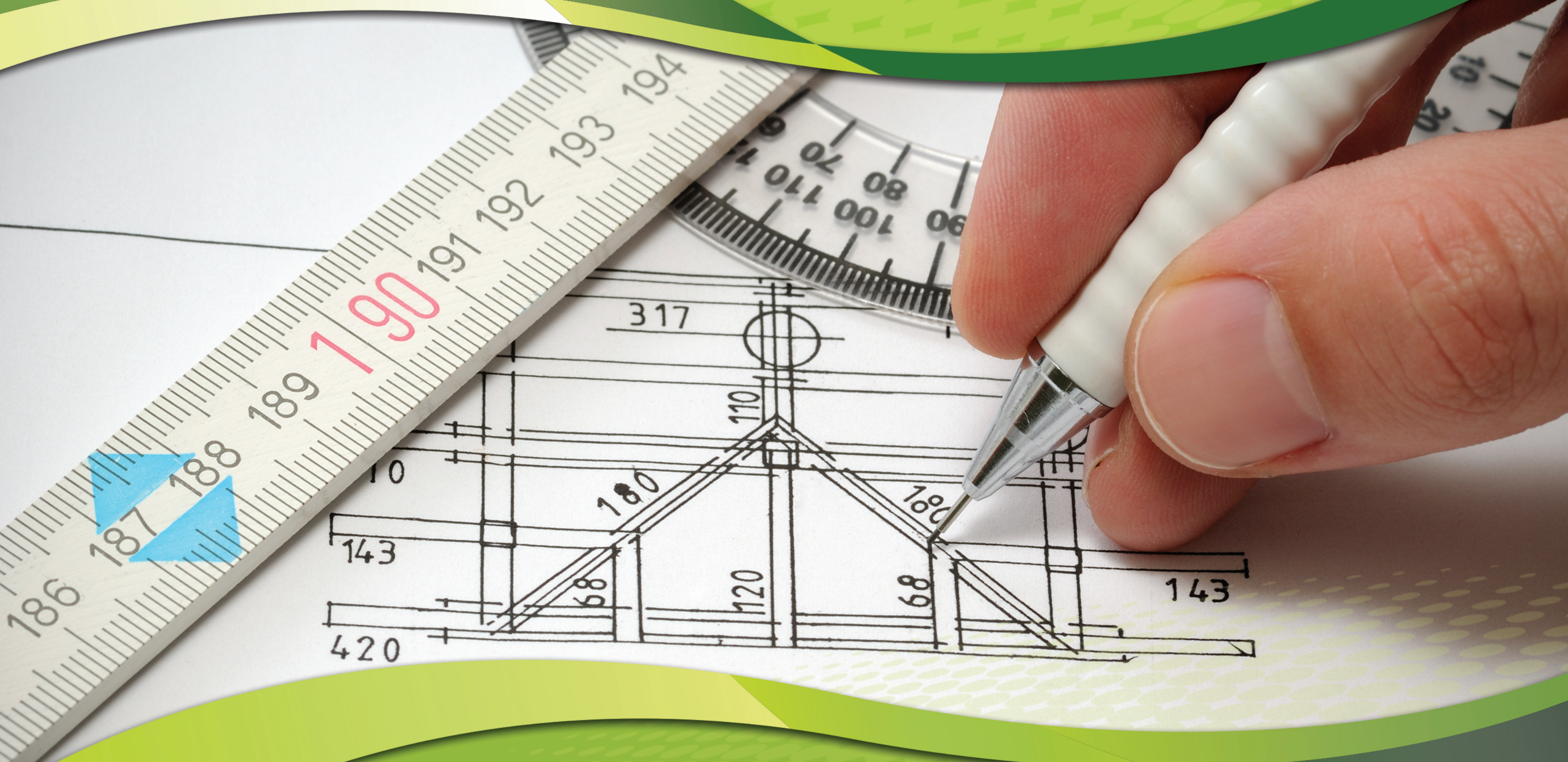
XII. GEOMETRİ SEMPOZYUMU



BİLDİRİ ÖZETLERİ

23-26 Haziran 2014 / Bilecik

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ÜNİVERSİTESİ

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BİLECİK ŞEYH EDEBALİ ÜNİVERSİTESİ

FEN EDEBİYAT FAKÜLTESİ

MATEMATİK BÖLÜMÜ

XII. GEOMETRİ SEMPOZYUMU

23-26 Haziran 2014

BİLECİK-TÜRKİYE

BİLDİRİ ÖZETLERİ

ÖNSÖZ

XII. Geometri Sempozyumu, 23-26 Haziran 2014 tarihleri arasında Bilecik Şeyh Edebali Üniversitesi Fen-Edebiyat Fakültesi Matematik Bölümü tarafından Bilecik'te düzenlenmektedir.

Amacımız, geometriye gönül vermiş bilim insanlarını bir araya getirerek yeni işbirliklerinin oluşmasına imkân sağlamaktır. Ayrıca ilimizin tarihi ve doğal güzelliklerini tüm katılımcıların dikkatine sunabilmektir.

Geometri sempozyumu ilk olarak 2002 de Fırat Üniversitesi'nin (Elazığ) ev sahipliğinde başlamış ve daha sonra Sakarya Üniversitesi (Sakarya iki kez), Karaelmas Üniversitesi (Zonguldak), Osmangazi Üniversitesi (Eskişehir), Uludağ Üniversitesi (Bursa), Ahi Evran Üniversitesi (Kırşehir), Akdeniz Üniversitesi (Antalya), Ondokuz Mayıs Üniversitesi (Samsun), Balıkesir Üniversitesi (Balıkesir) ve son olarak da Ordu Üniversitesi (Ordu) tarafından devam ettirilmiştir.

Bu sempozyum da toplam 6 adet çağrılı konuşma, 105 adet sözlü bildiri ve 15 adet poster bildiri sunumu yapılacaktır.

Sempozyum Düzenleme Kurulu olarak bu sempozyuma ev sahipliği yapmaktan ve sizleri topraklarında Cihan devleti Osmanlı İmparatorluğu'nu doğuran, hala Osmanlı ruhunu hissedebileceğiniz, çeşmeleri, manevi değerleri, tarihi ve Şeyh Edebali'si ile sizleri Bilecik'te ağırlamaktan onur duymaktayız.

Sempozyumun bilim dünyasına hayırlı olmasını temenni eder, tüm katılımcılara göstermiş olduğu destek ve ilgi için teşekkürlerimizi sunarız.

Doç. Dr. Sıddıka ÖZKALDI KARAKUŞ

Sempozyum Düzenleme Kurulu Adına

TEŞEKKÜR

Bu sempozyumun düzenlenmesinde maddi ve manevi desteklerini esirgemeyen başta üniversitemiz Rektörü Sayın Prof. Dr. Azmi ÖZCAN'a, Rektör Yardımcısı Sayın Prof. Dr. Abdulhalik BAKIR'a, Rektör Yardımcısı ve Fen-Edebiyat Fakültesi Dekanı Sayın Prof. Dr. Harun TUNÇEL'e, bölümümüzün kurucusu Sayın Prof. Dr. H. Hilmi HACISALİHOĞLU'na, sempozyumun her aşamasında bizleri yalnız bırakmayan Sayın Prof. Dr. Murat TOSUN'a, sempozyum kitapçığının hazırlanmasında destek veren Yrd. Doç. Dr. Mahmut AKYİĞİT'e sempozyumun hazırlanmasında emeği geçen bölümümüz öğretim elemanlarından Yrd. Doç.Dr. Figen UYSAL, Yrd. Doç. Dr. Osman Zeki OKUYUCU, Arş. Gör. Önder Gökmen YILDIZ, Arş. Gör. Bengi YILDIZ, Arş. Gör. Kemal Taşköprü, Uzman Mehmet SOLGUN'a, ayrıca bu sempozyumun organizasyonunda bizlere sponsor olarak maddi destek sağlayan

Bilecik Valiliği'ne
Bilecik Belediyesi'ne,
Osmaneli Belediyesi'ne,
Söğüt Belediyesi'ne
Bilecik Sanayi ve Ticaret Odası'na,

Sempozyum Düzenleme Kurulu olarak teşekkür ederiz.

Doç.Dr. Sıddıka ÖZKALDI KARAKUŞ
Sempozyum Düzenleme Kurulu Adına

XII. GEOMETRİ SEMPOZYUMU

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İÇİNDEKİLER

ÇAĞRILI BİLDİRİLER

SÖZLÜ BİLDİRİLER

POSTER BİLDİRİLER

ÇAĞRILI BİLDİRİLER

A Survey of Recent Developments on Taxicab and Some Non-Euclidean Metric Geometries

Rüstem Kaya[1]

Abstract. The aims of this survey are:

i) to inform the appearance and applications of the Taxicab Geometry (TG),

ii) to transfer necessary and basic information about TG and some Non-Euclidean Metric Geometries (NEMG) to the possible new researchers,

iii) to emphasize the important role of TG (as a Non-Euclidean Geometry) and NEMG in the active use of Geometry education and to determinate the contribution of TG in theorical and partical developments of metric geometries.

For these aims, firstly, we give a classification of geometries by metric approach based on the Euclidean axiomatization procedure. Then Main Concepts and basic problems of a metric geometry discussed. After a brief historical account of known metrics, all articles and other publications on TG are collected in a given references list and, then they are analyzed, summarized and classified according their contents. Later some information is given about the use of TG in geometry education and its influence on improvements in the field of Non-Euclidean metric geometries. Finaly some open problems, coming from (be produced from) our recent studies, both in TG and in NEMG, are introduced.

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Manifoldlar Üzerinde Eşitsizlikler ve Dejenere Geometri

Sadık Keleş [1]

Özet. Bu çalışmada, Nash'ın embedding teoreminden ortaya çıkan problemler tartışıldı. Bir Semi-Riemannian manifoldun dejenere olmayan altmanifoldlarının ve lightlike altmanifoldlarının içsel ve dışsal eğrilikleri arasında bazı eşitsizlikler elde edildi. Ayrıca, bu eşitsizliklerden yararlanılarak bazı karakterizasyonlar verildi.

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Fundamental Groups and Complex Surfaces

Hurşit Önsiper[1]

Abstract. We will discuss the role of the monodromy of the fundamental group in determining the deformations and the moduli of fibered complex projective surfaces. In particular, we will emphasize the topological nature of a fundamental rigidity result proved by employing the theory of harmonic maps.

Keywords. Monodromy, fibrations, moduli.

AMS 2010. 14J10, 14J15.

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Closed Curves and Slant Helices

Yusuf Yaylı[1]

Abstract. The closed curve problem an open problem of elementary differential geometry. Scofield in [6] give a method for closed curves.

Tangent indricatrix of slant helix is spherical helix. If spherical helix is closed then its integral curve is closed.

In this study, the relation between closed curves and slant helix is explained in Euclidean space and Minkowski space.

Keywords. Slant helix, closed curves.

AMS 2010. 14H45, 53A04, 53A4.

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Anti-Hermitian Geometry

Arif Salimov[1]

Abstract. Let (M, J) be a $2n$-dimensional almost complex manifold, where J denotes its almost complex structure. A semi-Riemannian metric g of neutral signature (n,n) is an anti-Hermitian (also known as a Norden) metric if $g(JX,Y) = g(X, JY)$ for any vector fields X and Y. An anti-Kähler (Kähler-Norden) manifold can be defined as a triple (M, g, J) which consists of a smooth manifold M endowed with an almost complex structure J and an anti-Hermitian metric g such that $\nabla J = 0$, where ∇ is the Levi-Civita connection of g. It is well known that the condition $\nabla J = 0$ is equivalent to □ -holomorphicity (analyticity) of the anti-Hermitian metric g.

It is a remarkable fact that anti-Kähler and its twin metrics share the same Levi-Civita connection. Such torsion-free metric connection also emphasise the importance of anti-Hermitian metric connections with torsion in the sudy of anti-Hermitian geometry. With the objective of defining new types of anti-Hermitian metric connections, in the present paper we consider classes of anti-Hermitian manifolds associated to these connections.

Keywords. Anti-Hermitian metric, anti-Kähler manifold, metric connection.

AMS 2010. 53C15, 53B35, 53C56.

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İç Çarpıma Göre Tanımlı Matris Çarpımı ve Bazı Uygulamaları

Halit Gündoğan[1]

Özet. Bu çalışmada Lorentz matris çarpımından yola çıkılarak, herhangi bir iç çarpıma göre yeni bir matris çarpımı tanımlanmıştır. Tanımlanan bu matris çarpımının bazı özellikleri ve uygulamaları verilmiştir.

Anahtar Kelimler. Lorentz matris çarpımı, özdeğer, öz vektör.

AMS 2010. 15A18.

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SÖZLÜ

BİLDİRİLER

On Riemannian Tangent Bundles of Order 2

Abdullah Mağden[1] and Aydın Gezer[2]

Abstract. Let (M,g) be an n-dimensional Riemannian manifold and T^2M its second-order tangent bundle equipped with a lift metric $\tilde{g}$. In this paper, firstly we construct some Riemannian almost product structures on T^2M. Also we find the conditions under which T^2M endowed with these sturctures is a locally decomposable Riemannian manifold or Riemannian almost product W_3-manifold. Finally by means of an almost product structure and the Levi-Civita connection of the metric $\tilde{g}$ we define a metric connection with torsion on T^2M and study its geometric properties.

Keywords. Almost product structure, metric connection, Riemannian metric, second-order tangent bundle.

AMS 2010. 53C07**,** 53C15.

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The Canal Surfaces with Osculating Spheres

Abdullah Yıldırım[1]

Abstract. Recall definitions and results [1]. Initially, we parametrize a canal surface with osculating spheres via characteristic circles of it. Later, we define a tube as a special case of the canal surface with osculating spheres [2]- [3]

Keywords. Canal surfaces, Tubular surfaces, Osculating spheres

AMS 2010. 53A04, 53A05.

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Rotation Surfaces in 4-Dimensional Pseudo-Euclidean Spaces

Ahmet Kazan[1] and H. Bayram Karadağ[2]

Abstract. In this paper, we study the rotation surfaces in 4-dimensional pseudo-Euclidean spaces E_1^4 and E_2^4. We investigate the rotation surfaces and also give a classification of rotation surfaces in E_1^4 under the condition $(\Psi^{i})_{uu} + (\Psi^{i})_{vv} = \lambda_i \Psi^{i}$, $\lambda_i \in \mathbb{R}$, i = 1, 2, 3, 4. Furthermore, we examine the isothermal rotation surfaces in E_2^4 and give some characterizations for them.

Keywords. Rotation Surface, Mean Curvature, Isothermal Surface, Weingarten Surface.

AMS 2010. 53A05, 53A10, 53B30.

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Hamiltonain Mechanical System on an Almost Kähler Model of a Cartan Space

Ahmet Mollaoğulları[1] and Mehmet Tekkoyun[2]

Abstract. As known, Hamiltonian models arise to be a very important tool. Because they present a simple method to describe the different model for mechanical systems. Therefore, in this study, we obtain a new Hamiltonian mechanical system on an almost Kähler model of a Cartan manifold. In the conclusion, we discuss some results about related mechanical system.

Keywords. Cartan Manifold, Kähler Manifold, Hamiltonian Mechanics

AMS 2010. 53C15, 70H05

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Some Curvature Conditions on Indefinite Para-Sasakian Manifolds

Ahmet Sazak[1] and Ahmet Yıldız[2]

Abstract. In this paper we study some curvature conditions on indefinite para Sasakian manifolds.

Keywords. Indefinite para Sasakian manifold, Ricci curvature tensor, Weyl conformal curvature tensor.

AMS 2010. 53C25.

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The Schouten-Van Kampen Connection on *F*-Kenmotsu Manifolds

Ahmet Yıldız[1], Ahmet Sazak[2] and Kadir İçaçan[3]

Abstract. In this paper we study some curvature conditions *f*-Kenmotsu manifolds with the Schouten-van Kampen connection.

Keywords. Almost contact metric manifolds, the Schouten-van Kampen connection.

AMS 2010. 53C07, 53C25.

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Öklid 3-Uzayında Tzitzeica Tipinde Bazı Self-Similar Eğriler

Alev Kelleci [1] ve Mahmut Ergüt [2]

Özet. Bu çalışmada, E^3, öklid 3-uzayındaki Tzitzeica eğriler ve self-similar eğriler incelenmiştir. İlk olarak, E^3 deki bir Tzitzeica eğrisi ile bir self-similar doğrusu arasındaki ilişki verilmiştir. Sonrasında, Tzitzeica tipindeki bir genel helis ve self-similar eğri için bir sonuç verilmiştir. Ve son olarak da E^3 deki Tzitzeica tipindeki küresel eğrilerin self-similar olma koşulu verilmiştir.

Anahtar Kelimeler. Tzitzeica eğri, Self-similar eğri, Genel helis, Küresel Eğriler, Öklid 3-Uzay

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On Generalized Bertrand Curves in Minkowski Space-Time

A. Uçum[1], O. Keçilioğlu [2] and K. İlarslan[3]

Abstract. Generalized Bertrand curves (or (1,3)-Bertrand curves) was studied in [2] and [3] with respect to the casual characters of the curves in Minkowski space-time E_1^4. This approach has some gaps due to considering only the curves with same casual characters. In this paper, we reconsider the (1,3)-Bertrand curves with respect to the casual caharacters of the plane spanned by the principal normal and the second binormal vector fields of the given curve to complete these gaps. We restrict our investigation of (1,3)-Bertrand curves to the timelike (1,3)-Normal plane in Minkowski space-time.

Keywords. Bertrand curve, Minkowski space-time, Frenet planes.

AMS 2010. 53C50, 53C40.

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A New Approach to Classify the Curves in Minkowski 3-Space

Ali Uçum[1], Kazım İlarslan[2] and Sıddıka Özkaldı Karakuş[3]

Abstract. In Mathematics, many researchers has classified the curves according to thier some properties. One of the most important examples is Bertrand curves which are the curves whose principal normal vector fields are parallel to each other [1]. The second one is Mannheim curves which are couple curves such that the principal normal of one of them is paralel to the first binormal of the other [2]. Another classification was done for couple curves by S. Özkaldı Karakuş et al. [3]. By inspiring them, A.Uçum et al. studied on classification of couple curves in Minkowski 3-space ([4],[5] and [6]). In the present talk, we are going to investigated the possibility of whether any timelike Frenet plane of a given space curve in Minkowski 3-space E_1^3 also is any timelike Frenet plane of another space curve in the same space. As a result, we have possible nine cases and obtain some results for given curves by matching their Frenet planes with each other one by one [4].

Keywords. Frenet planes, curvatures, circular helix, generalized helix, rectifying curve, Mannheim curve, Salkowski and anti-Salkowski curve..

AMS 2010. 53C50.

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On Invariant Submanifolds of a Riemannian Warped Product Manifold with a Semi-Symmetric Metric Connection

Ali Yakar [1] and Erol Yaşar [2]

Abstract. In this paper, we study the relation between the geometry of the invariant submanifolds of Riemannian warped product manifold with Levi-Civita connection and the geometry of the invariant submanifolds of Riemannian warped product manifold with semi-symmetric metric connection. We show that invariant submanifold of the Riemannian warped product manifold with semi-symmetric metric connection is not a Riemannian warped product manifold. Finally we obtain that one of integral manifolds on an invariant submanifold with semi-symmetric metric connection is not curvature-invariant submanifold.

Keywords. Riemannian Manifold, Warped Product Manifold, Semi-symmetric Metric connection, Levi-Civita connection.

AMS 2010. 53B15, 53B30, 53C05.

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A Pull-Back Bundle of Cotangent Bundles Defined by Projection of the Tangent Bundle

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Abstract. We define a semi-cotangent [8] (pull-back) bundle t*M of cotangent bundle T*M by using projection (submersion) of the tangent bundle TM. The main purpose of this paper is to investigate complete lifts of vector and affinor (tensor of type (1,1)) fields for semi-cotangent (pull-back [1,2,4,6]) bundle t*M.

Keywords. Vector field, complete lift, pull-back bundle, tangent bundle, semi-cotangent bundle.

AMS 2010. 53A45, 53C55, 55R10.

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Smarandache Curves in H_0^2 and S_1^2

Atakan Tuğkan Yakut[1] and Tuğba Tamirci[2]

Abstract. In this study, we introduce special Smarandache curves according to Sabban frame in hyperbolic and de Sitter spaces. We give some characterization of Smarandache curves. In addition, the existence of duality between Smarandache curves in hyperbolic and de Sitter space is shown. In addition, we give examples of our main results.

Key Words. Smarandache curves, de Sitter space, Sabban frame, Minkowski space.

AMS 2010. 53A04, 53A25, 53A35, 53A40.

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On The Existence of Triangles in De Sitter Surface

Atakan Tuğkan Yakut[1] and Efruz Özlem Mersin[2]

Abstract. We study triangles on the de Sitter surface. Ten different types of triangles are created by taking the intersections of Lorentzian hyperplanes with the de Sitter surface, where planes are located in the origin. These triangles have spacelike, timelike or lightlike edges. These triangles can be contractible or non-contractible. Furthermore, the existence and non-existence of triangle inequalities among edges of de sitter triangles is shown.

Keywords. Triangle,tetrahedron, hyperbolic space, de sitter space

AMS(2010). 53A35, 53B30

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Some Results about the Invarians of Spatial Motion, Ruled Surfaces and Developable Ruled Surfaces

Aydın Altun[1]

Abstract. Using dual vector, polygon curves, curvatures, some general results are derived. In this way, dual ruled surfaces, dual developable ruled surfaces are presented. The saddle surfaces and the helical curves are translated to the unit sphere and ruled saddle surfaces and the developable ruled cylindrical helical surfaces are presented. Orbits and foliations, from some point of view, are among the simplest and the most important objects of ergodicity and stability theories. In fact, as one will see from this sruvey, they are not simple at all. On the one hand, the well-known results about them have been achieved by reading from the vast literature of them; on the other hand, the answers for many elementry problems about them are still missing. In addition, the geometry of the real and dual unit spherical motions does serve as a meeting point for several applied subjects such as ergodicity and stability. In order to give proofs, we use the 2- saddles, $s_i^2, i=1,...,3n$ with negative curvatures. A number of tools and issues encountered in the theory of real and dual unit spherical representations are illustrated here in an elementary and simple manner, usually free from difficult theories of the spherical motions themselves. In the manuscript, I also give the topological properties of the 2-saddles, $s_i^2, i=1,...,3n$. These elementary geometric and topologic devices of the two-saddles able the theory versatile and clear.

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Curves of Restricted Type in Euclidean Spaces

Bengü (Kılıç) Bayram [1] and Nergiz Önen[2]

Abstract. Submanifolds of restricted type were introduced in [7]. In the present study we consider restricted type of curves in IE^m. We give some special examples. We also show that spherical curve in $S^2(r)\subset IE^3$ is of restricted type if and only if either f(s) is constant or a linear function of s of the form f(s)=±s+b and every closed W-curve of rank k and of length 2πr in IE^{2k} is of restricted type.

Keywords. Curves of restricted type.

AMS 2010. MSC2010, 53A04.

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A New Type Product Surfaces in Euclidean Spaces

Betül Bulca[1] and Kadri Arslan[2]

Abstract. In the present study we consider mixed product surfaces in Euclidean spaces. We give a generalization of surface of revolution, rotational surfaces, spherical product surfaces and ruled surfaces as a mixed product of the given curves. We also give some examples of these type of surfaces in E^3 and E^4.

Keywords. Rotational surfaces, Surface of revolution.

AMS 2010. 53C40, 53C42

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N_k - Slant Helix and Curve of Constant Precession in Minkowski 3-Space

Beyhan Uzunoğlu[1], Çağla Ramis[2] and Yusuf Yaylı[3]

Abstract. A curve whose spherical images are slant helix called it as a C-slant helix is investigated by B. Uzunoğlu, İ. Gök and Y. Yaylı and showed that a curve of C-constant precession is a C-slant helix in [6].

In this paper, using the new orthonormal frame, we are generalized the above theory which has the property that the second vector of this frame makes a constant angle with a fixed direction for the spatial curve in the Minkowski 3-space. Also we give the axis of slant helix according to the different conditions of curves. We define curve of N_k -(timelike/spacelike) constant precession with the Minkowski space E_1^3.

Keywords. Slant helix, general helix, curve of constant precession, principle curve.

AMS 2010. 51B20, 14H50, 53A40.

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Lightlike Hypersurfaces of a Para-Sasakian Space Form

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Abstract. In this paper, lightlike hypersurfaces of a para-Sasakian space form are studied. We introduce a screen semi-invariant lightlike hypersurface of a para-Sasakian space form and show that there is no screen semi-invariant lightlike hypersurface of a para-Sasakian space form $M(k)$, ($k \neq -1$) with a paralel second fundamental form. Moreover, non-existence of screen semi-invariant hypersurfaces of a para-Sasakian space form $M(k)$, $(k \neq (1/3))$ with paralel screen distribution is proved.

Keywords. Para - Sasakian Manifold, Para - Sasakian Space Form, Lightlike Hypersurfaces

AMS 2010. 53C15, 53C25.

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Helix Characterizations Due o Sabban Frame

Bülent Altunkaya[1] and Levent Kula[2]

Abstract. In this work, we are investigating that under which conditions of the geodesic curvature of unit speed curve γ that lies on the unit sphere, the curve α which is obtained by using γ, is a spherical helix or slant helix.

Keywords. Helices, Spherical Helices, Slant Helices, Sabban Frame.

AMS 2010. 53A04, 53C22.

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On the Associated Curves of a Frenet Curve in Euclidean 3-Space

Büşra Aktaş[1] and Mehmet Bektaş[2]

Abstract. We introduce the notion of the binormal direction curve and binormal donor curve of a Frenet curve in E^3 and give the relationship of curvature and torsion of it mates. And we obtained new characterizations of the donor curve of a Frenet curve in E^3.

Keywords. Frenet curve, binormal donor curve, binormal direction curve.

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Complex Hamiltonian Equations with Complex Bundle Structure for Minkowski 4-Space

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Abstract. The aim of this study is to improve complex Hamiltonian energy equations with time dependent case for Minkowski 4-space. Many fundamental geometrical properties for time dependent Minkowski 4-space have been obtained in complex form. The following results can be droven from this study.

1)It is showed that the derivative coordinates for jet bundle structure has not an important role on the Hamiltonian energy functions.

2)Results showed that Hamiltonian energy is stabil.

Keywords. Minkowski 4-space; Jet Bundle;Hamiltonian mechanical system; Hamiltonian energy Equation

AMS 2010. 14D21, 53C15, 70H03, 70S05

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On Three Dimensional Almost α-Paracosymplectic Manifolds

Cengizhan Murathan[1], İrem Küpeli Erken[2] and Piotr Dacko[3]

Abstract. This paper is a complete study of almost α-paracosmplectic manifolds. We characterize almost α-paracosmplectic manifolds which have para Kaehler leaves. Main curvature identities which are fulfilled by any almost α-paracosmplectic manifold are found. Three dimensional almost **α** –paracosymplectic manifolds whose Reeb vector field ξ is harmonic are characterized. We focus on some curvature properties by considering the class of **α** –paracosymplectic (κ,μ,ν)-manifolds under a condition.Furthermore, we construct examples of almost α-paracosmplectic manifolds satisfying generalized nullity conditions.

Keywords. Almost paracontact metric manifold, almost paracosymplectic manifold, almost para-Kenmotsu manifold, para-Kaehler manifold.

AMS 2010. 53B30, 53C15, 53C25;

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On Screw Motion in 3-Dimensional Minkowski Space

Çağla Ramis[1] and Yusuf Yaylı[2]

Abstract. In kinematics, any displacement is defined by a rotation about a fixed line and a translation along the same line, also this process is called the screw motion. In this study, we give an effective method to find the fixed axis of a screw motion with the help of dual elements in 3-dimensional Minkowski space.

Keywords. Screw motion, screw axis, dual quaternion.

AMS 2010. 15A33, 53B30, 70E17.

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Some Geometric Properties of Weighted Euler Sequence Space $e_w^\theta(p)$

E. Evren Kara[1] and Merve İlkhan[2]

Abstract. In the present paper, we examine some geometric properties, rotund property, Kadec-Klee Property, uniform Opial Property, β-property, $k-NUC$ property, Banach-Saks property of type p, of the space $e_w^\theta(p)$.

Keywords. rotund property, Kadec-Klee property, uniform Opial property

AMS 2010. 46A45, 40C05, 46A35

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Some Special Relaxed Elastic Lines

Ergin Bayram[1] and Emin Kasap[2]

Abstract. We obtain necessary and sufficient condition for a surface curve with non vanishing curvature to be a relaxed elastic line if it is a geodesic or a line of curvature. Also, we show that an asymptotic curve can not be a relaxed elastic line.

Keywords. Relaxed elastic line, calculus of variation, surface curve.

AMS 2010. 53A04, 53A05, 49Q20.

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Helicoidal Surfaces of Value *m* in Euclidean 3-Space

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Abstract. We define a new kind of helicoidal surface of value *m* in three dimensional Euclidean space. A rotational surface which is isometric to the helicoidal surface of value *m* is revealed. In addition, we calculate some differential geometric properties of the helicoidal surface of value 3.

Keywords. Helicoidal surface of value *m*, rotational surface of value *m*, mean curvature, Gaussian curvature, Gauss map.

AMS 2010. 53A10, 53C45.

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Screen Ricci Curvature on Screen Locally Conformal Half Lightlike Submanifolds of a Lorentzian Manifold

Erol Kılıç[1], Mehmet Gülbahar[2] and Sadık Keleş[3]

Abstract. We introduce screen Ricci curvature on screen locally coformal half lightlike submanifolds of a Lorentzian manifold. We establish an inequality involving this curvature. We investigate this inequality on screen locally conformal half lightlike submanifolds of semi-Euclidean space R_1^n.

Keywords. Curvature, Lightlike submanifold, Semi-Euclidean space.

AMS 2010. 53C15, 53C40.

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Homothetical Motions and Surfaces with Constant Mean Curvature in Lorentz 3-Space

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Abstract. In this work we search the surfaces in Lorentz 3-space with constant mean curvature, whose generating curve is a graph of a polynomial, under homothetical motion groups

Keywords. Homothetical motion, Lorentz 3-space, Mean Curvature

AMS 2010. 53A10

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On Pseudospherical Smarandache Curves in Minkowski 3-Space

Esra Betül Koç Öztürk[1], Ufuk Öztürk[2], Kazım İlarslan[3] and Emilija Nesovic[4]

Abstract. In this paper we define non-null and null pseudospherical Smarandache curves according to the Sabban frame of a spacelike curve lying on pseudosphere in Minkowski 3-space. We obtain the geodesic curvature and the expressions for the Sabban frame's vectors of spacelike and timelike pseudospherical Smarandache curves. We also prove that if the pseudospherical null straight lines are the Smarandache curves of a spacelike pseudospherical curve α , then α has constant geodesic curvature. Finally, we give some examples of pseudospherical Smarandache curves

Keywords. Smarandache curves, pseudosphere, Sabban frame, geodesic curvature, Minkowski space.

AMS 2010. 53B30,53A35, 53C22.

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Generalizations of Null W-Slant Helices

Fatma Gökçelik[1], İsmail Gök[2] and F. Nejat Ekmekci[3]

Abstract. In this paper, we introduce a new kind of slant helix for null curves called null W_n −slant helix and we give a definition of new harmonic curvature functions of a null curve in terms of W_n in (n+2)-dimensional Lorentzian space M_1^{n+2} (for n>3). Also, we give a characterization such as:

"The curve α is a null W_n −slant helix $\Leftrightarrow H_n' - k_1 H_{n-1} - k_2 H_{n-3} = 0$ "

where H_n, H_{n-1} and H_{n-3} are harmonic curvature functions and k_1, k_2 are the Cartan curvature functions of the null curve α.

Keywords. Null curve, Slant helices, Harmonic curvature functions, Lorentzian (n+2)-space.

AMS 2010. 14H45, 14H50, 53A04.

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Ruled Surfaces According to Rotation Minimizing Frame

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Abstract. In this paper, we investigate the ruled surfaces generated by a straight line according to rotation minimizing frame (RMF). Using this frame of base curve, we obtained the necessary and sufficient conditions when the ruled surface is developable. Also, we give some new results and theorems related to be asymptotic curve, geodesic curve and line of curvature of the base curve on the ruled surface.

Keywords. Ruled Surface, Curves, Darboux Frame, Rotation Minimizing Frame (RMF).

AMS 2010. 53A04, 53A05.

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The Fermi-Walker Derivative in Spacelike Curve

Fatma Karakuş[1] and Yusuf Yaylı [2]

Abstract. In this study, Fermi-Walker derivative and Fermi-Walker parallelism are analyzed for any spacelike curve with a lightlike principal normal in Minkowski 3-space and the necessary conditions to be Fermi-Walker parallel are explained.

Keywords. Fermi-Walker derivative, Fermi-Walker parallelism, spacelike curve, .

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Bilişim Geometrisine Giriş

Fatma Muazzez Şimşir[1]

Özet. Bir düz afin manifold ve Kaehler afin metriği ikilisine Kaehler afin manifold denilir. Kahler afin metriği vasıtasıyla, afin manifoldtaki düz konneksiyona dual olan başka bir düz afin konneksion elde edilir. Ayrıca, düz olmayan bir dual konneksiyonlar ailesini de tanımlamak mümkündür. Afin geometrideki Kaehler afin metrik kavramı tabii bir biçimde bilişim geometrisinde karşımıza çıkmaktadır. Bu konneksiyon ailesi vasıtasıyla Chentsov [1] ve Amari-Nagaoka [2] bilişim geometrisinin temellerini atmışlardır. Olasılık dağılımlarının kümesi bir manifold olarak istatistiki bir model (parametrik model) oluşturmaktadır. Bu model vasıtasıyla manifoldun geometrik yapısı ve istatistiki tahmin arasındaki bağıntı analiz edilir. Bilişim geometrisinde Fisher bilişim metriği önemli bir rol oynamaktadır. Bu çalışmada, bilişim geometrisinin temelleri ve afin geometri ile yakın ilişkisi anlatılacaktır.

Anahtar Kelimeler. Düz afin manifold, Kaehler afin metrik, Fisher metriği, istatistiksel diferansiyel geometri

AMS 2010. 53B20, 53B21,94A15.

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On The Gauss Map of Minimal Surfaces in Euclidean 4-Space

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Abstract. In this work minimal surfaces in Euclidean 4-space are dealed with. First, the second Laplacian of the Gauss map of these type of surfaces is obtained. Then, the minimal surfaces with biharmonic and null 2-type Gauss map are classified.

Keywords. biharmonic Gauss map, finite type submanifolds, minimal surfaces.

AMS 2010. 53B25, 53C50.

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Lightlike Submanifolds With Planar Normal Section In Semi-Riemannian Product Manifolds

Feyza Esra Erdoğan[1] and Rıfat Güneş[2]

Abstract. In this paper lightlike submanifolds with degenerate and non-degenerate planar normal section in a Semi-Riemannian Product manifolds are studied. We investigate necessary and sufficient conditions for a lightlike submanifold in a semi-Riemannian product manifolds to have planar normal sections.

Keywords. Semi-Riemannian Product manifold, lightlike submanifolds, planar normal sections .

AMS 2010. 53C40, 53C15, 53C42, 53C50.

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A New Concept of Helices in the Tangent Bundle

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Abstract. In this paper, we give some relationship between helices curve α in tangent bundle *TM* equipped with Sasaki metric and its projection π(α) in Riemannian n-dimensional manifold *M*. Moreover, we define new type of curves called horizontal, vertical and tangent helix curves in *M* and several important characterizations of these curves are obtained.

Keywords: helix, slant helix, metric, lift, tangent helix, slant helix.

AMS Subject Classification: Primary 14H45; secondary 58A30**.**

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A Necessary and Sufficient Condition on the Weyl Manifolds Admitting a Semi Symmetric Non-Metric Connection to be S-Concircular

Füsun Baştan[1]

Abstract. The object of this paper is to obtain the concircular curvature tensor of the semi symmetric non-metric connection on the Weyl manifold and to give a necessary and sufficient condition for a semi symmetric non-metric connection to be S-concircular.

Keywords. Weyl manifolds, concircular curvature tensor, semi symmetric non-metric S- concircular connection.

AMS 2010. 53A40.

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On Curvatures of Planar Curves

Gizem Cansu[1], Yusuf Yaylı[2] and F. Muazzez Şimşir[3]

Abstract. In this study, we research plane curves in Affine differential geometry and give some characterizations for special planar curves such as ellipse, hyperbola and parabola. Moreover, we obtain the relation between affine curvature and Euclidean curvature for planar curves.

Keywords. Affine curve, Affine curvature, Euclidean curvature.

AMS 2010. 53A04, 53A15.

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Surfaces with a Common Geodesic Curve According to Bishop Frame

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Abstract. In this paper, we express surfaces parametrically through a given geodesic curve using the Bishop frame of the curve in Euclidean 3-space. Necessary and sufficient conditions for the coefficients of the Bishop frame to satisfy both parametric and geodesic requirements are derived. We also present some interesting examples to show the validity of this study.

Keywords. Geodesic curve; Parametric curve; Bishop frame; Bishop curvatures.

AMS 2010. 53A04, 53A05.

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Properties of Integral Invariants of the Involute – Evolute Offsets of Ruled Surfaces

Gülsüm Yeliz Saçlı[1], Salim Yüce[2] and Nuri Kuruoğlu[3]

Abstract. We have given new characteristics results about the pitch and angle of the pitch which are the integral invariants of the involute – evolute offsets of ruled surface with geodesic Frenet frame.

Keywords. Ruled surface, involute - evolute, integral invariants

AMS 2010. 53A05, 53A25.

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Properties of Integral Invariants of the Mannheim Offsets of Ruled Surfaces

Gülsüm Yeliz Saçlı[1] and Salim Yüce[2]

Abstract. We have given new characteristics results about the pitch and angle of the pitch which are the integral invariants of Mannheim offsets of ruled surface with geodesic Frenet frame.

Keywords. Ruled surface, Mannheim, integral invariants

AMS 2010. 53A05, 53A25.

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On Darboux Rotation Axis of Lightlike Curves

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Abstract. In this paper, by used Frenet trihedron for a lightlike curve, the motion of Darboux rotation axis is seperated two simultaneous rotation. One of these rotation motions is that tangent vector of lightlike curve rotates around normal vector. Also, another one is that normal vector rotates around tangent vector. But, the angular speed of them is different. Then, by doing the similar operations, we obtain that Darboux axis rotates around spacelike vector of Frenet trihedron of lightlike curve and this spacelike vector rotates around Darboux axis. Consequently, we obtain the series of Darboux vectors by this way.

Keywords. Lightlike curve, Frenet trihedron, Darboux vector, Lorentzian space.

AMS 2010. 53A04, 53A35.

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Weak Biharmonic and Harmonic 1-Type Curves in Semi-Euclidean Space E_1^4

Günay Öztürk[1], Bengü K. Bayram[2] and Kadri Arslan[3]

Abstract. In the present study we consider weak biharmonic and harmonic 1-type curves in semi-Euclidean space E_1^4. We give the classifications of these type curves.

Keywords. Weak Biharmonic Curve, Harmonic 1-Type Curve, Minkowski Space.

AMS 2010. 53A35.

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Anti-Holomorphic Semi-Invariant Submersions from Kaehlerian Manifolds

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Abstract. We study anti-holomorphic semi-invariant submersions from Kaehlerian manifolds onto Riemannian manifolds. We prove that all distributions which are involved in the definition of the submersion are integrable. We also prove that the O'Neill's tensor ***T*** vanishes on the invariant vertical distribution. We give necessary and sufficient conditions for totally geodesicness and harmonicity of this type submersions. Moreover, we investigate the several curvatures of the total manifold and fibers and give a characterization theorem.

Keywords. Riemannian submersion, anti-holomorphic semi-invariant submersion, horizontal distribution, Kaehlerian manifold.

AMS 2010. 53C15, 53B20

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On Focal Surfaces which form Timelike Rectilinear Congruence

Hakan Şimşek[1] and Mustafa Özdemir[2]

Abstract. In this paper, we investigate the focal surfaces which obtain with the timelike normal rectilinear congruence whose straight lines are normal to spacelike surface, in the Minkowski 3-Space. Then, the relation $\lambda_1 K_{Z^1} + \lambda_2 K_{Z^2} = 0$ between Gaussian curvatures of these focal surfaces are examined. Also, above the relation is showed in the circumstances that spacelike surface is the Weingarten surface and minimal surface. Finally, the relation which states area preserving correspondence between the focal surfaces is given.

Keywords. Minkowski space, Rectilinear Congruence, Spacelike surface, Focal surface.

AMS 2010. 53A35, 53B30.

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AW(k)-Type Curves According to Paralel Transport Frame in Euclidean Space E^4

İlim Kişi [1], Günay Öztürk [2], Sezgin Büyükkütük [3] and Kadri Arslan [4]

Abstract. In this study we consider AW(k)-type $(k = 1,2,\ldots,7)$ curves according to paralel transport frame in Euclidean space E^4. We give the relations between the paralel transport curvatures of these kinds of curves.

Keywords. AW(k)-type curve, Paralel transport frame.

AMS 2010. 53A04, 53C40.

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Paracontact Metric $(\tilde{\kappa}, \tilde{\mu})$-Spaces With $\tilde{\kappa} < -1$

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Abstract. In this study, we deal with paracontact metric $(\tilde{\kappa}, \tilde{\mu})$-manifolds such that $\tilde{\kappa} < -1$. We prove $\tilde{\varphi}\tilde{h}$ is diagonalizable with eigenvectors $0, \pm\tilde{\lambda}$, where $\tilde{\lambda} := \sqrt{1-\tilde{\kappa}}$. We start by proving by proving that the distributions defined by the eigenspaces of $\tilde{\varphi}\tilde{h}$ define two mutually orthogonal Legendre foliations. The main difference with the case $\tilde{\kappa} > -1$ and, more in general, with the theory of contact metric (κ, μ)-spaces, is that they are not totally geodesic, but they are totally umbilical. We find the explicit expressions of the Pang invariants of the Legendre foliations $D_{\tilde{\varphi}\tilde{h}}(\tilde{\lambda})$ and $D_{\tilde{\varphi}\tilde{h}}(-\tilde{\lambda})$. We give the formula of Riemannian curvature tensor $\tilde{R}$. We conclude with an example of paracontact metric $(\tilde{\kappa}, \tilde{\mu})$-manifolds such that $\tilde{\kappa} < -1$.

Keywords. Paracontact metric manifold, Contact metric manifold, $(\tilde{\kappa}, \tilde{\mu})$-manifold

AMS 2010. 53B30, 53C15.

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On the Tangent Sphere Bundle of the Pseudo Hyperbolic Two Space

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Abstract. In this study, the Sasaki semi Riemann metric g^S on the tangent sphere bundle with radius ε $T_\varepsilon H_1^2$ of the pseudo hyperbolic two space H_1^2 in three dimensional semi Euclidean space with index one E_1^3 is obtained. Moreover, the connection coefficients of the Levi Civita connection on the Sasaki semi Riemann manifold $(T_\varepsilon H_1^2, g^S)$ are found and then the nonlinear geodesic equations of $(T_\varepsilon H_1^2, g^S)$ are obtained. Finally, the components of the Riemann curvature tensor of $(T_\varepsilon H_1^2, g^S)$ are calculated.

Keywords. The Tangent Sphere Bundle, Sasaki semi Riemann metric.

AMS 2010. 55R25, 53C25.

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An Inverse Problem for a Generalized Transport Equation in Polar Coordinates

İsmet Gölgeleyen[1]

Abstract. This paper is concerned with the inverse problem of the determination of the right-hand side of a generalized transport equation from boundary measurements. The problem is originally related to an integral geometry problem along a family of curves whose curvature is given by the Christoffel symbols. The existence, uniqueness and stability of the solution of the problem are proven in polar coordinates.

Keywords. Inverse problem, Integral geometry problem,.Christoffel symbols.

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Surfaces in Euclidean Spaces E^{n+2}

Kadri Arslan [1]

Abstract. In the present study we consider surfaces in Euclidean spaces E^{n+2}. We give some welknown results on curvature conditions on these surfaces. Further, we give some examples on 4-dimensional Euclidean space E^4 .

Keywords. Surfaces in Euclidean spaces, mean curvature, Gaussian curvature.

AMS 2010. 53C40, 53C42

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Obtaining of Motion Equations on Complex Foliated Manifolds

Lütfullah Bilal Korkmaz[1] and Mehmet Tekkoyun[2]

Abstract. In his paper we deduce the related motion equations and Lagrangian and Hamiltonian mechanical systems on complex foliated manifold. Also we give some conclusions about obtained mechanical systems.

Keywords. Lagrangian Mechanics, Hamilton Mechanics, Complex Foliated Manifold.

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Focal curvatures according to Parallel Transport Frame in Euclidean Space E^n

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Abstract. In this paper, by benefiting focal curvatures according to parallel transport frame in 3-dimensional Euclidean space by [3], we have investigated curvature of focal curves acording to parallel transport frame in n-dimensional Euclidean space and also examined situation that can be vertex of a point and spheral of the curve.

Keywords. Focal curves, Parallel transport frame

AMS 2010. 53A04,51M30

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Minkowski 3-Uzayında Self-Similar Paralel Yüzeyler

Mahmut Ergüt[1] ve Alev Kelleci[2]

Özet. Bu çalışmada, E_1^3, Minkowski 3-uzayındaki spacelike paralel yüzeyler ve timelike paralel yüzeyler incelenmiştir. İlk olarak, E_1^3 deki bir timelike paralel yüzeyin self-similar olma durumu verilip, buna ilişkin bir karakterizasyon ve bazı sonuçlar elde edildi. Sonrasında, E_1^3 deki bir spacelike paralel yüzeyin self-similar olma durumuna ilişkin bir karakterizasyon ve bazı sonuçlar verildi.

Anahtar Kelimeler. Paralel yüzeyler, Self-similar yüzeyler, Minkowski 3-Uzay, Spacelike ve Timelike yüzeyler.

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Invariant Surfaces Under H-Translation, H-Rotation and Horocyclic Rotation in Hyperbolic Space

Mahmut Mak[1] and Baki Karlığa[2]

Abstract. In this study, we investigate extrinsic differential geometry of invariant surfaces under translation, rotation and horocyclic rotation in H^3, is called Minkowski model of hyperbolic space, respectively. We give explicit parametrization of this invariant surfaces with respect to constant hyperbolic curvature of profile curves. Finally, we obtain some corallaries for flat and minimal invariant surfaces in H^3.

Keywords. Translation, rotation, horocyclic rotation, invariant surface, flat, minimal.

AMS 2010. 53A35, 53C45.

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Estimating the Geodesic Path via Distance in Graphs

Mehmet Ali Balcı[1], Ömer Akgüller[2] and Dilara Altan[3]

Abstract. The computation of geodesic paths and distances on manifolds is a primary processes in computer graphics applications. Commonly used methods such as fast marching methods, active contours, and re-meshing usually use graph theoretic algorithms. In this study, we present a new algorithm based on Euclidean distance in graphs to estimate the geodesic on a manifold. Basic terms as diameter, radius, peripheral vertex problems in graphs, graph components and Euclidean distances are used to solve several optimization problem. The Euclid Graph which represents data poins can be drawn by setting the data points as vertices and then calculating the distance between those vertices by Euclidean Metric and determining the edges when the distance is less and equal to a fixed D value. This D value will be determined empirically.

Keywords. Euclidean Graph, Geodesics, Computational Geometry.

AMS 2010. 05C12, 05C38, 68U05

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B.Y. Chen Inequalities on Bi-Slant Submanifolds of an Almost Hermitian Manifold

Mehmet Gülbahar[1], Erol Kılıç[2] and Sadık Keleş[3]

Abstract. We expose a new orthonormal basis on bi-slant submanifold, semi-slant submanifold and hemi-slant submanifold of an almost Hermitian manifold to compute Chen's main inequalities. We investigate these inequalities for semi-slant submanifolds, hemi-slant submanifolds and slant submanifolds of an generalized complex space form. We obtain some characterization on these submanifolds of an complex space form.

Keywords. Almost Hermitian manifold, Slant submanifold, Complex space form.

AMS 2010. 53C15, 53C40.

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Affine Connection ${}^{S}\nabla = {}^{C}\nabla + {}^{V}H$ Induced On A Cross-Section

Melek ARAS[1]

Abstract. The main purpose of present paper is to study the affine connections Induced with respect to The Synectic Lift ${}^{S}\nabla = {}^{C}\nabla + {}^{V}H$ on a cross-section $\beta_{\xi}(M_n)$ determined by a vector field ξ in M_n with respect to the adapted frame of $\beta_{\xi}(M_n)$

Keywords. Tangent bundle, Synectic metric Cross-section

AMS 2010 Classification:53C07; 53B05

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On Parameter Curves of the Hasimoto Surface in Minkowski 3-Space

Melek Erdoğdu[1] and Mustafa Özdemir[2]

Abstract. In this study, we investigate the Hasimoto surfaces in Minkowski 3-space. We discussed the geometric properties of Hasimoto surfaces in M^3 for three cases. The Gaussian and mean curvature of Hasimoto surface are found for each case. Then, we give the characterization of parameter curves of Hasimoto surfaces in M^3.

Keywords. Hasimoto surface, Smoke ring equation, Binormal motion.

AMS 2010. 14J25 . 53Z05.

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New Trends in the Learning and Teaching of Linear Algebra and Their Implications

Melih Turgut[1]

Abstract. The aim of this paper is to present the following aspects of the learning and teaching of linear algebra: i) problem of the formalism, ii) students' thinking modes of linear algebra, iii) three basic languages used in linear algebra, and iv) three principles for the learning and teaching of linear algebra. Moreover, integration of frameworks of learning linear algebra, some of recommendations on the use technology and designing teaching modules are discussed.

Keywords. Teaching of linear algebra, formalism, students' thinking modes.

AMS 2010. 97B50, 97G70.

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New Parametric Representation of D-Pencil Surface by Using Darboux Frame in Minkowski 3-Space

Muhammed Talat Sarıaydın[1], Talat Körpınar[2] and Selçuk Baş[3]

Abstract. In this paper we study D- pencil surface in Minkowski 3-space. By using Darboux Frame in Minkowski space, we give the necessary and sufficient condition for a pencil surface. Then, we obtain general conditions of each other different G_1, G_2, G_3 developable ruled surface with line of curvature of the pencil surface. Finally, we construct the corresponding surfaces which possesing some representative curves as lines of curvature.

Keywords. Minkowski Space, Darboux Frame, Pencil Surface.

AMS 2010. 53A35

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Bezier Eğrilerinin Bishop Çatısı Yardımıyla Karakterizasyonu

Muhsin İncesu[1] ve Mustafa Yeneroğlu[2]

Özet. Bu çalışmada, Bezier eğrilerinin Bishop çatısına göre kontrol noktaları yardımıyla karakterizasyonu yapıldı. Daha sonra bu kontrol noktaları yardımıyla Bishop eğrilikleri oluşturuldu. Son olarak bazı örnekler verilerek çizimler yapıldı.

Anahtar Kelimeler. Bishop Çatı, Bezier Eğri.

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Slant Helix Curves and Acceleration Centers in Minkowski 3-Space $\mathbb{E}_1^3$

Murat Bekar[1] and Yusuf Yaylı[2]

Abstract. In this study, an alternative one-parameter motion to Frenet motion of a rigid-body in 3-dimensional Minkowski space $\mathbb{E}_1^3$ is given by moving the coordinate frame $\{\boldsymbol{N}, \boldsymbol{C}, \boldsymbol{W}\}$ instead of the Frenet frame $\{\boldsymbol{T}, \boldsymbol{N}, \boldsymbol{B}\}$ along a non-null unit speed curve $\alpha(t)$, where $\boldsymbol{N}$, $\boldsymbol{C}$ and $\boldsymbol{W}$ correspond to, respectively, unit principal normal vector field, derivative vector field of the unit principal normal vector field and Darboux vector field of the non-null unit speed curve $\alpha(t)$. Also the concepts fixed axode, striction curve, instantaneous pole points, acceleration pole points (or acceleration centers) and instant screw axis (ISA) of this alternative one-parameter motion are analyzed.

Keywords. Slant helix; C-Slant helix; Striction curve; Rigid-body motion; Acceleration center.

AMS 2010. 53A04, 53A05, 53A17.

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Conformally Kähler Surfaces and Orthogonal Holomorphic Bisectional Curvature

Mustafa Kalafat[1] and Caner Koca[2]

Abstract. We show that a compact complex surface which admits a conformally Kahler metric g of positive orthogonal holomorphic bisectional curvature is biholomorphic to the complex projective plane.In addition, if g is a Hermitian metric which is Einstein, then the biholomorphism can be chosen to be an isometry via which g becomes a multiple of the Fubini-Study metric.

Keywords. Einstein metrics, Kahler metrics, Fubini-Study metric.

AMS 2010. 53C25, 53C55.

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Prolongations of Silver Structure to the Tangent Bundle of Order 2

Mustafa Özkan[1] and Ayşe Asuman Çıtlak[2]

Abstract. In this study, we studied 2-nd lift of the silver structure in the tangent bundle of order 2. Further, we investigated the geometry of the silver structure in T_2M with respect to almost product structure which is 2-nd lift of almost product structure on the manifold M.

Keywords. Silver ratio, silver structure, tangent bundle of order 2, second lift.

AMS 2010. 53C15

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On Differential Forms over the Quantum Superspace

Muttalip Özavşar[1] and Ergün Yaşar[2]

Abstract. Quantum groups are the deformations of Lie groups in the sense that the Hopf algebra structure over the universal enveloping algebra of a Lie group appears as noncocommutative one via a deformation parameter, and this noncocommutative Hopf algebra(quantum group) reduces to the cocommutative one in the classical limit [1]. In this study, we first investigate a class of algebras over the quantum superspace [2], and the related quantum groups. We also study exterior algebra of differential forms on this quantum superspace.

Keywords. Lie Groups, Quantum Groups, Hopf Algebras, Derivation Algebra

AMS 2010. 81R60., 81R50., 16T05.

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Some Characterizations on the Null Cartan Curves of R_1^4

Müslüm Aykut Akgün[1] and Ali İhsan Sivridağ[2]

Abstract. We syudy the position vectors of a Cartan framed null curve in the Minkowski 4-space. We give some characterizations for null curves which lie on some subspaces of R_1^4.

Keywords. Null curve, Cartan frame, Minkowski Spacetime.

AMS 2010. 53A35, 53B30.

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On Spacelike W-Curves With Non-Null Normals In 4-Dimensional Semi-Euclidean Space with Index 2

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Abstract. A Frenet curve of rank$r$ with constant curvatures is called (generalized) screw line or helix. Since these curves are trajectories of the 1-parameter group of Euclidean transformation, Klein and Lie [1] called them W-curves. W-curves in Minkowski Space studied by many authers ([2], [3], [4]). In this paper, we investigate the properties of spacelike W-curves with non-null normals in 4-dimensional semi-Euclidean space with index 2. We obtain their parametric equations with the help of curvatures functions and we give some related examples.

Keywords. W-curves, spacelike curves, curvatures, semi-Euclidean space.

AMS 2010. 53A40, 20M15.

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Chen and Chen-Like Inequalities on Lightlike Hypersurface of a Lorentzian Manifold with Semi Symmetric Metric Connection

Nergis Önen [1] ,Burçin Doğan [2] and Erol Yaşar [3]

Abstract. In this paper, we introduce k-Ricci curvature and k-scalar curvature on lightlike hypersurface of a Lorentzian manifold with semi symmetric metric connection. Using this curvatures, we establish some inequalities for lightlike hypersurface of a Lorentzian manifold with semi symmetric metric connection. Considering these inequalities, we obtain the relation between Ricci curvature and scalar curvature endowed with the semi symmetric metric connection.

Keywords. Lightlike hypersurface, Lorentzian manifold, Ricci curvature, semi symmetric metric connection.

AMS 2010. 53A40, 20M15.

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Chen Inequalities on Submanifold of a Real Space Forms with a Ricci Quarter-Symmetric Metric Connection

Nergiz Önen[1] and Erol Yaşar [2]

Abstract. In this paper, we establish some inequalities for submanifold of real space forms endowed with a Ricci quarter symmetric metric connection. Using these inequalities, we obtain the relation between Ricci curvature, scalar curvature and the mean curvature endowed with the Ricci quarter symmetric metric connection.

Keywords. Submanifold, Chen inequalities, Ricci Quarter-Symmetric Metric Connection, Levi-Civita connection.

AMS 2010. 53B15, 53B30, 53C05, 53C50.

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On the Mappings Preserving Two Hyperbolic Distances

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Abstract. We assume that X is the set of points of a hyperbolic geometry and the dimension of X is at least 2. In this paper, we define two hyperbolic distances on X and we examine mappings that preserving this hyperbolic distances.

Keywords. Hyperbolic distance, hyperbolic isometry.

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Spherical Images for Double - Helix of DNA in 3 Dimensional Space

Nural Yüksel[1], Aysel Turgut Vanlı[2] and Esra Damar[3]

Abstract. In this paper, we study the geometric properties of the Double-Helix of DNA for Bishop Frame in 3-dimensional space. By translating Bishop frame vectors of strand -helix to the center of unit sphere of 3-dimensional Euclidean space, we obtain spherical images. and calculate Frenet Frame vectors and curvatures of these spherical images. Additionaly, we express some interesting collary for Double-Helix of DNA.

Keywords. DNA structure, Double-Helix, Frenet frame, Bishop frame, Bishop curvatures, Bishop spherical images.

AMS 2010. 53A40, 20M15.

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Parallel Curves and Helices in Minkowski 3-Space

Nural Yüksel [1], Murat Kemal Karacan[2], Bahaddin Bükcü[3] and Hasibe İkiz[4]

Abstract. In this study, we have defined parallel curves in the Lorentzian plane. To a curve α in the Lorentzian plane, there exist the curve β at a given distance r (except for some dejenerate cases).The curve β can be alternatively obtained as the envelopes of Lorentzian circles of radius r with centers moving along the curve α. This construction is carried over the Minkowski 3-space and parallel helices are defined as well.

Keywords. Parallel curves, parallel helices, Minkowski 3-space.

AMS 2010. 53A04, 53B30.

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On the H-Hypersurfaces in Euclidean Spaces

Nurettin Cenk Turgay [1]

Abstract. In this work, we study the hypersurfaces of Euclidean spaces with arbitrary dimension. We obtain some geometrical properties of H-hypersurfaces. We also obtain some results on classification of H-hypersurfaces of Euclidean spaces.

Keywords. Biharmonic submanifolds, Euclidean space, minimal hypersurfaces.

AMS 2010. 53B25, 53C50.

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Mechanical Equations with Two Almost Complex Structure on Symplectic Geometry

Oğuzhan Çelik[1] and Zeki Kasap[2]

Abstract. An almost complex manifold is a smooth manifold accoutred with smooth linear complex structure on each tangent space. Almost complex structures have important applications on symplectic geometry. M is a symplectic manifold such that it accoutred with a closed nondegenerate di¤erential 2-form then it called the symplectic form. Symplectic manifolds arise naturally in abstract formulations of classical mechanics and analytical mechanics as the cotangent bundles of manifolds. In classical mechanics, dynamic movements with Euler-Lagrange and Hamilton equations is found. This article, using two complex structures, is related mechanical systems on symplectic geometry.

Keywords. Symplectic Geometry, Lagrangian, Hamiltonian, Mechanical System.

AMS 2010. 53D05, 70H03, 70H05.

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Metric and Periodic Lines in the Poincaré Disc Model of Hyperbolic Geometry

Oğuzhan Demirel[1]

Abstract. In this paper, we prove that every metric line in the Poincaré disc model of hyperbolic geometry is exactly a classical line of it. We also prove nonexistence of periodic lines in the Poincaré disc model of hyperbolic geometry.

Keywords. Metric spaces, hyperbolic geometry, Poincaré disc model of hyperbolic geometry

AMS 2010. 51M10, 51F99.

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Parallel-Like Surfaces of Surfaces of Rotation

Ömer Tarakcı[1] and Ali Çakmak[2]

Abstract. We investigate Parallel-Like surfaces on surfaces of rotation and give their some properties.

Keywords. Parallel Like Surfaces, surfaces of rotation, parallel surfaces, curvatures, shape operatör.

MSC 2010. 53B25, 53B30, 53C40.

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On the Determination of a Developable Spherical Orthotomic Ruled Surface

Önder Gökmen Yıldız[1], Sıddıka Ö. Karakuş[2] and H. Hilmi Hacısalihoğlu[3]

Abstract. In this paper, a method for determination of developable spherical orthotomic ruled surfaces is given by using dual vector calculus. We show that dual vectorial expression of a developable spherical orthotomic ruled surface can be obtained from coordinates and the first derivatives of the base curve. The paper concludes with an example related to this method.

Keywords. Ruled surface; developable surface; dual vector; dual unit sphere; orthotomic; spherical orthotomic.

AMS 2010. 53A04, 53A05, 53A25, 53A40.

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On the Quaternionic W-Curves in the Semi-Euclidean Space E_2^4

Özgür Boyacıoğlu Kalkan[1] and Derya Sağlam[2]

Abstract. In this paper, position vector of the semi-real quaternionic W-curve in four dimensional semi-Euclidean space E_2^4 is given and by using position vector we obtain some characterizations for the semi-real quaternionic W-curve whose image lies on the semi-quaternionic hyperbolic space H_1^3, semi-quaternionic sphere S_2^3 and semi-real quater-nionic null cone $C(m)$ in E_2^4. Also we characterize unit semi-real quaternionic curves with respect to second curvature $k(s)$ and third curvature $(r-\varepsilon_t\varepsilon_T\varepsilon_{N_1}K)(s)$.

Keywords. Real quaternion, W-curve, position vector.

AMS 2010. 11R52, 53A04.

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On g-lifts of Vector-Valued 1 and 2-Forms

Rabia Cakan [1] and Arif Salimov[2]

Abstract. We transfer complete lifts from the tangent bundle to the cotangent bundle by using a musical isomorphism between these bundles. A given complete lifts in the tangent bundle describe $g-$lift in the cotangent bundle. We study $g-$lifts of afinor fields (vector-valued 1-form) and vector-valued 2-form in the cotangent bundle.

Keywords. Tangent bundle, Cotangent bundle, Complete lift, Musical isomorphism, Anti-Hermitian metric.

AMS 2010. primary 55R10; secondary 53C15.

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On the Platonic Solids and Metric Geometry

Rüstem Kaya[1] and Temel Ermiş[2]

Abstract. In this work, we study on the relation between Platonic solids and metric geometries.

Keywords. Platonic Solids, Metric Geometry, Distance Function.

AMS 2010. 51FXX, 51JXX.

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On Some Invariant Quantities Under Z-Projective Change

Salim Ceyhan[1] and Gülçin Çivi[2]

Abstract. In the present paper, we investigate some invariant quantaties under Z-projective change in Finsler spaces. In the paper [1], B-D. Kim and Ha-Y. Park dealt with it and had two projective invariants, one is the Weyl curvature tensor W and the other is the Douglas tensor D. Moreover, we showed that Riemann curvature and R-curvature tensor are also invariant under Z-projective change. Also, we obtained the necessary and sufficient condition in order that a Riemann curvature remains invariant under Z-projective change.

Keywords. Finsler Spaces, R-Curvature Tensor, Riemann Curvature, Z-Projective Change.

AMS 2010. 53C20, 53C60

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An Approach For The Minimal Surface Family Passing a Circle

Sedat Kahyaoğlu[1] and Emin Kasap[2]

Abstract. In this study, we investigate the parametric representation of the minimal surface family passing a circle. We utilize Frenet frame of the circle for derive the parametric representation of the minimal surface family.

Keywords. Minimal surfaces, surfaces with prescribed mean curvature.

AMS 2010. 53A10.

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Again on the Theorem of Almost Complex Structures

Seher Aslancı[1]

Abstract. Salimov, Gezer and Aslancı [3] prove that the complete lift of almost complex structure, when restricted to the cross-section determined by an almost analytic 1-form, is an almost complex structure on cotangent bundle of a Riemannian manifold. In this paper we generalize their theorem for the case of a non-Riemannian base manifold. Also we give an extension of this theorem for pure cross-sections of tensor bundle.

Keywords Almost complex structure, cotangent bundle, tensor bundle, pure cross-section, Nijenhuis tensor, analytic tensor field

AMS 2010. 53C15, 55R10.

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Some Types of Lightlike Submanifolds in Para-Sasakian Manifolds

Selcen Yüksel Perktaş[1], Bilal Eftal Acet[2] and Erol Kılıç[3]

Abstract. In the present paper we study lightlike submanifolds of almost paracontact metric manifolds. Invariant lightlike submanifolds and radical transversal lightlike submanifolds of para-Sasakian manifolds are introduced, respectively. Moreover, we investigate the geometry of distributions and give some examples.

Keywords. Para - Sasakian manifold, Lightlike submanifold.

AMS 2010. 53C15, 53C25.

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Characterization of one Parameter Family of Surfaces in Terms of Inextensible Flows in De Sitter 3-Space

Selçuk Baş[1], Talat Körpınar[2], Muhammed Talat Sarıaydın[3] and Vedat Asil[4]

Abstract. In this paper, we study inextensible flows of some ruled surfaces of spacelike curves in de Sitter 3-space. We express some characterizations in terms of their curvature and torsion functions in de Sitter 3-space.

Keywords. Inextensible flows, de Sitter 3-space.

AMS 2010. 53A35.

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On Characterizations of New Curves in 3-Space

Semra Kaya Nurkan[1], Murat Kemal Karacan[2], İlkay Arslan Güven[3] and Yılmaz Tunçer[4]

Abstract. In this study we deal with adjoint curve of a space curve and give characterizations of such curves.We also research that whether the adjoint curve and the original curve made new pairs in the means of involute-evolute and Bertand pairs. Furthermore, we define a ruled surface with base curve α and the director curve β which is adjoint curve of α and we also define a tubular surface in a similar way.

Keywords. Adjoint curve, ruled surfaces, tubular surface.

AMS 2010. 53A04, 53A05,53A35.

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Generalized Euler Spirals in E^3

Semra Saraçoğlu Çelik[1] and Yusuf Yaylı[2]

Abstract. The Cornu spirals on plane are the curves whose curvatures are linear. Generalized planar Cornu spirals and Euler spirals in E^3, the curves whose curvatures are linear are defined in [1,4]. In this study, these curves are presented as the ratio of two rational linear functions.

Also here, we have defined generalized Euler spirals in E^3 and give some various characterizations. The approach we used in this paper is useful in understanding the role of Euler spirals in E^3 in differential geometry.

Keywords. Cornu spiral, curvature, Bertrand curve pair.

AMS 2010. 53A04, 53A05.

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Öklidyen Düzlemde Olmayan Noktaya Yolculuk

Serkan Kuloğlu[1] ve Nesrin Özsoy[2]

Özet. Öklidyen düzlemde kesişen iki doğru arasında, bir doğrudan diğerine, doğrular üzerinde olmayan keyfi bir noktaya göre merkezil iz düşüm alındığında, doğru üzerindeki bir noktanın merkezil iz düşümü oklidyen düzlemde yer almayan, hiper düzlem üzerinde yer alan sonsuzdaki bir nokta olur [1]. Çalışmada oklidyen düzlemde kesişmeyen her doğrunun, yukarıda bahsi geçen oklidyen düzlemde yer almayan noktadaki durumunun ne olabileceği irdelenerek, oklidyen düzlemin elemanı olan ve kesişmeyen her doğrunun, sözünü ettiğimiz sonsuzdaki noktada kesişebilecekleri limit yaklaşımı ile dik üçgenler üzerinde ispatlanmıştır.

Anahtar Kelimeler. *merkezil iz düşüm, paralel doğrular, oklidyen düzlem*

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New associated curves and their applications in Euclidean 3-space

Sezai Kızıltuğ, Mehmet Önder and Yusuf Yaylı[1]

Abstract. In this paper, we define new curves called osculating-direction and osculating donor curves in Euclidean 3-space. Moreover, we obtain the relationships between osculating direction curves and some special curves such as helix, slant helix or rectifying curves.

Key words. Associated curve; osculating-direction curve, osculating-donor curve.

AMS 2010. 53A04, 22E15, 11A66.

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On Slant Geometry of Spacelike Surfaces in the Lightcone

Shyuichi Izumiya[1] and Handan Yıldırım[2]

Abstract. In this talk, as an application of the extensions in [4] of four Legendrian dualities shown in [3] for the pseudo-spheres in Lorentz-Minkowski space which are called Hyperbolic space, de Sitter space and the lightcone, we first introduce the basic framework of slant geometry of spacelike surfaces in the lightcone in Lorentz-Minkowski 4-space. Then, we give "Egregium Theorems" for these surfaces by means of this basic framework, [5].

Keywords. Legendrian dualities, spacelike surfaces, lightcone, Lorentz-Minkowski space.

AMS 2010. 53B30, 58K99, 53A35, 58C25.

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Dynamic Tangent Flow for Curves on Time Scales

Sibel Paşalı Atmaca[1] and Ömer Akgüller[2]

Abstract. The time scale calculus is emerged to analyze dynamical processes which involves discrete and continuous characteristics, and introduced by Hilger [1]. Eventually, the geometric aspect of the theory is studied by various researchers [2--8]. In this study we present tangent flow for arc-length parameterized curves on time scales by considering forward and backward tangent lines together.

Keywords. Time Scale Calculus, Tangent Flow, Translations.

AMS 2010. 34N99, 37C10, 53A04.

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The Space-Like Curves of Constant Breadth according to Bishop Frame in E_1^3

Süha Yılmaz[1], Ü. Ziya Savcı[2] and Yasin Ünlütürk[3]

Abstract. A regular curve with more than 2 breadths in Minkowski 3-space is called a Smarandache curve. In this paper, we study a special case of Smarandache breadth curves. Some characterizations of the space-like curves of constant breadth according to Bishop frame are presented in Minkowski 3-space.

Keywords. Smarandache breadth curves, curves of constant breadth, Minkowski 3-space, Bishop frame.

AMS 2010. 53A05, 53B25, 53B30.

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An Example of Projective Coordinate Spaces

Süleyman Çiftçi[1] and Fatma Özen Erdoğan [2]

Abstract. In this study an (n+1)-dimensional module over the local ring $K = M_{mm}(\square)$ and also n-dimensional projective coordinate space over this module are constructed. Then, some properties of a 3-dimensional projective coordinate space that is constructed in this way are investigated.

Keywords. Local ring, module, projective coordinate space.

AMS 2010. 51C05, 13C99.

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f-Biharmonic Legendre Curves in Sasakian Space Forms

Şaban Güvenç[1] and Cihan Özgür[2]

Abstract. Ye-Lin Ou studied *f*-biharmonic maps and *f*-biharmonic submanifolds in [4]. Motivated by his study, we consider *f*-biharmonic Legendre curves in Sasakian space forms. We find curvature characterizations of these types of curves in four cases, using the method given in [3].

Keywords. Legendre curve, Sasakian space form, *f*-biharmonic curve.

AMS 2010. 53C25, 53C40, 53A05.

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Some Inequalities for Langrangian Riemannian Submersions

Şemsi Eken[1], Erol Kılıç[2] and Yasemin Sağıroğlu[3]

Abstract. In this paper, we compute scalar curvature for Kaehlerian manifolds admitting a Langrangian Riemannian submersion. We establish some inequalities for Langrangian Riemannian submersion. Using these inequalities, we get some characterizations for Langrangian Riemannian submersions.

Keywords. Kaehler manifold, Submersion, Scalar Curvature.

AMS 2010. 53C42, 32Q15

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The Jet Bundle Structure on Einstein Manifolds

Şevket Civelek[1], Cansel Aycan[2] and Simge Dağlı[3]

Abstract. Firstly, the Einstein Manifolds is introduced in this study. The bundle structure and also the jet bundle structure is formed on this manifolds. Geometric properties of this bundle structure has been examined. Thus, it is proved that the bundle structure can be installed on Einstein Manifolds and the coordinates are obtained. Results showed and commented.

Keywords. Einstein Manifolds; Jet Bundle; Jet coordinates

AMS 2010. 53C25, 53C15,70G10

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Hamiltonian Equations of Kähler-Einstein Manifolds with Equal Kähler Angles

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Abstract. The study aims to introduce Hamiltonian formalism for mechanical systems using Kähler-Einstein manifolds with equal Kähler angles, which represent an interesting multidisciplinary field of research. Also, solutions of these equations will be made using the symbolic computer program and the geometrical-physical results related to on Kähler-Einstein mechanical systems are also to be issued.

Keywords. Kähler-Einstein Manifold, Hamiltonian, Mechanical System.

AMS 2000. 32Q15, 32Q20, 37N20, 51P05, 53C15, 53C25, 53C07, 58J60, 70H05, 83C05.

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On the Parametric Equations of General Helices and the Normal Ruled Surfaces of General Helices in the Nil Space Nil_3

Şeyda Kılıçoğlu[1], H.Hilmi Hacısalihoğlu[2] and Ayhan Aksoy[3]

Abstract. In this paper, we study general helices in the Nil Space Nil_3. We characterize the general helices in terms of their curvature and torsion. Further, Normal ruled surface of general helices are studied. We find out their explicit parametric equations in the Nil Space Nil_3.

Keywords. General helix, ruled surface, Nil space, Curvature, Torsion.

AMS 2010. 53A04, 53A05.

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Integral Representation Formula according to Flat Metric in Lorentzian Heisenberg Group

Talat Körpınar[1], Essin Turhan[2] and Mahmut Ergüt[3]

Abstract. In this paper, we construct a method to derive a Weierstrass-type representation formula for simply connected immersed surfaces in Lorentzian Heisenberg group. We consider the Lorentzian flat left invariant metric and use some results of Levi-Civita connection.

Keywords. Weierstrass representation, Heisenberg group, Minimal surface.

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On the Involute-Evolute of the Pseudo Null Curve in Minkowski 3-Space

Ufuk Öztürk[1], Esra Betül Koç Öztürk[2] and Kazım İlarslan[3]

Abstract. In this study, we have generalized the involute and evolute curves of the pseudo null curves α in E_1^3, i.e. α is a spacelike curve with a null principal normal. Firstly, we have shown that, there is no involute of the pseudo null curves α in E_1^3. Secondly, we have found relationships between the evolute curve β and the pseudo null curve α in E_1^3. Finally, some examples concerning these relations are given.

Keywords. Involutes, evolutes, pseudo null curve, Minkowski 3-space, Frenet vectors.

AMS 2010. 53A04, 53B30, 53C50.

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Spinor Darboux Equations of Curves in Minkowski Space

Yakup Balcı[1], Tülay Erişir[2] and Mehmet Ali Güngör[3]

Abstract. In this paper, we have expressed the spinor formulation of Darboux frame on an oriented surface in Minkowski space R_1^3. Moreover, we have given the relation between the spinor formulation of Frenet frame and Darboux frame of the curve in R_1^3.

Keywords. Hyperbolic spinors, Darboux Equations, Minkowski Space.

AMS 2010. 15A66, 51B20.

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Interplay Between Euclidean Geometry and Geometric Inequalities

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Abstract. We discuss some Geometric Extrema problems that have interesting connections with Classical Plane Geometry. It is important to note that the study of Maxima-Minima problems in Geometry reveals some hidden facts of Triangle Geometry that are otherwise very difficult to find or explain. In many cases Geometric Inequalities provide isolated theorems of Classical Geometry with previously unknown connections. In addition to these Geometric Inequalities inspire us to study the properties of plane figures that were previously unnoticed. As an example we present Geometric inequality improving Euler's inequality with following equivalent inequalities and related Euclidean Geometry facts [1].

1. If *a*, *b*, *c* are sides, and *R*, *r* are circumradius and inradius of a triangle then

$$\frac{R}{r} \geq 2 + 8\frac{(a-b)^2+(b-c)^2+(c-a)^2}{(a+b+c)^2}$$

and equality holds only for equilateral triangles and for triangles similar to the triangle with sides 3, 3, 2.

2. The following inequality for the sides *a*, *b*, *c* of a triangle holds true

$$\frac{a^3}{b+c-a}+\frac{b^3}{c+a-b}+\frac{c^3}{a+b-c}+7(ab+bc+ca) \geq 8\left(a^2+b^2+c^2\right).$$

3. The 1st of the following two inequalities is stronger than the 2nd one.

$$\text{(I)}\quad \frac{R}{r} \geq \frac{(a+b)(b+c)(c+a)}{4abc}, \quad \text{(II)}\quad \frac{R}{r} \geq 6\frac{a^2+b^2+c^2}{(a+b+c)^2}.$$

4. Let M be a given point in the plane of triangle ABC. Construct the lines A_1B_2, B_1C_2 and C_1A_2 meeting at M such that for i=1 and i=2, A_i lies on the line BC, B_i lies on the line CA, and C_i lies on the line AB, and moreover, $A_1B_2 \| A_2B_1$, $B_1C_2 \| B_2C_1$, $C_1A_2 \| C_2A_1$. Areas will be denoted by square brackets. Denote $T_1=[MC_1B_2]$, $T_2=[MA_1C_2]$, $T_3=[MB_1A_2]$, $S_1=[MA_1A_2]$, $S_2=[MB_1B_2]$, $S_3=[MC_1C_2]$, $P_1=[AB_2C_1]$, $P_2=[BC_2A_1]$, $P_3=[CA_2B_1]$. Then the inequality $P_1+P_2+P_3+7(S_1+S_2+S_3) \geq 8(T_1+T_2+T_3)$, holds true and equality in it occurs if and only if the central point *M* is a midpoint of medians or centroid of triangle *ABC*.

Keywords. Geometric inequality, Euclidean geometry, Euler inequality

AMS 2010. 51M04, 51M16, 51M25.

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The Invariants and Equivalences of Curve Families in GL(n,R)

Yasemin Sağıroğlu[1]

Abstract. Let GL(n,R) be the groups of all real matrices which determinants are nonzero. The system of generators for the differential field of all GL(n,R)-invariant differential rational functions of curve families is found. The conditions for GL(n,R)-equivalence of curve families is obtained.

Keywords. Differential invariant, GL(n,R)- group, equivalence of curves.

AMS 2010. 53A15, 53A55.

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Hypersurfaces Satisfying Some Curvature Conditions on Pseudo Projective Curvature Tensor in the Semi-Euclidean Space

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Abstract. We consider some curvature conditions on the Pseudo projective curvature tensor P on a hypersurface in the semi-Euclidean space E_s^{n+1}. We prove that every pseudo projectively Ricci-semisymmetric hypersurface M satisfying the condition $P \cdot R=0$ is pseudosymmetric. We also consider the condition $P \cdot S=0$ on hypersurfaces of the semi-Euclidean space E_s^{n+1}.

Keywords. Pseudo projective curvature tensor, pseudosymmetric manifold, Ricci-semisymmetric manifold.

AMS 2010. 53B20, 53C25, 53B30, 53C40.

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Weyl-Euler-Lagrange Equations on Contact 5-Manifolds

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Abstract. It is well known that contact geometry deals with certain manifolds of odd dimension. It is close to symplectic geometry and like the latter it originated in questions of classical mechanics. Contact geometry has, as does symplectic geometry, broad applications in physics, geometrical optics, classical mechanics, analytical mechanics, mechanical systems, thermodynamics, geometric quantization and applied mathematics such as control theory. It is well known that one way of solving problems in classical mechanics is using the Euler-Lagrange equations. Weyl offered a conformal structure and this structure was transferred to the mechanical systems. In this study, Weyl-Euler-Lagrange equations as representing the motion of the body were found on contact manifolds. Also, these solution of differential equations are solved by symbolic computation program.

Keywords. Weyl Manifold,Conformal Differential Geometry, Contact Manifold, Mechanical System, Dynamic Equation, Lagrangian Formalism.

AMS 2010. 34B20, 34N05, 53A30, 53D10, 70S05, 81Q05, 82C21.

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POSTER BİLDİRİLER

$R \cdot C = 0$ and $R \cdot \tilde{Z} = 0$ Curvature Conditions on Indefinite Para-Sasakian Manifolds

Ahmet Sazak[1] and Ahmet Yıldız[2]

Abstract. In this paper we study $R \cdot C = 0$ and $R \cdot \tilde{Z} = 0$ curvature conditions on indefinite para Sasakian manifolds.

Keywords. Indefinite para Sasakian manifold, Riemann curvature tensor, Weyl conformal curvature tensor, concircularly curvature tensor.

AMS 2010. 53C15, 53C25.

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On Indefinite Para-Sasakian Manifolds

Ahmet Sazak[1] and Ahmet Yıldız[2]

Abstract. In this paper we study some curvature conditions on indefinite para Sasakian manifolds satisfies $R \cdot C = 0$ and $R \cdot \tilde{Z} = 0$.

Keywords. Indefinite para Sasakian manifold, curvature tensor, Weyl conformal curvature tensor, concircularly curvature tensor.

AMS 2010. 53C15, 53C25.

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On The Pseudo *f*-Manifolds

Erdal Özüsağlam[1] and Erbil Dikici

Abstract. We introduce the concept of Pseudo *f*-Manifolds. Some typical identities for curvature tensor and Ricci tensor of Pseudo *f*-Manifolds are obtained

Keywords. Pseudo f-structure, Riemann curvature tensor, f-structure

MSC 2010. 53C25, 53C50.

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Some Curvature Tensors on Almost α-Cosymplectic Manifolds

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Abstract. The purpose of the present paper is to study almost α-cosymplectic manifolds which have some curvature tensor conditions. In particular, projectively semi-symmetric, Weyl semi-symmetric, semi-symmetric and concircularly semi-symmetric conditions are examined. Some results are obtained on almost α-cosymplectic manifods, where α is a smooth function such that $d\alpha \wedge \eta = 0$.

Keywords. Almost α-cosymplectic manifold, projectively flat, η-parallelity.

AMS 2010. 53D10, 53C21, 53C25, 53C35.

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On Inextensible Flows of Special Curves and Some Developable Surfaces

Levent Kula[1], Ramazan Leylek[2] and Mesut Altınok[3]

Abstract. In this study, we investigate the some formulations for inextensible flows of special curves and some developable surface in R^3. Moreover, we give results for the inextensible flows. Also related examples and their illustrations are given.

Keywords. Inextensible, Flow, Plane curve, Developable surface

AMS 2010. 53A40, 20M15.

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On Solutions to the Commutative Quaternion Matrix Equations

$$\boldsymbol{A\overline{\overline{X}} - XB = C,\ A\overset{\boxminus}{X} - XB = C} \textbf{ and } \boldsymbol{A\overline{\overset{\square}{X}} - XB = C}$$

Mahmut Akyiğit[1], Hidayet Hüda Kösal[2] and Murat Tosun[3]

Abstract. In this paper, the existence of solution to the commutative quaternion matrix equations $A\overline{\overline{X}} - XB = C$, $A\overset{\boxminus}{X} - XB = C$ and $A\overline{\overset{\square}{X}} - XB = C$ is characterized and solutions of these matrix equations are derived by means of real representations of commutative quaternion matrices.

Keywords. Commutative quaternion, real representation of commutative quaternion matrix.

AMS 2010. 15B33, 15A18.

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On Bäcklund Transformation for Timelike Curves in Minkowski Space-Time

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Abstract. The main purpose of this study is to construct a Bäcklund transformation between two timelike curves in Minkowski Space-time by considering some assumptions. Moreover, We give the relations between the torsion of these two timelike Bäcklund curves in three different cases. For each case, we prove that timelike Bäcklund curves must have constant torsion..

Keywords. Bäcklund Transformation, Timelike Curve, Constant Torsion Curve.

AMS 2010. 53B30, 53A05, 37K35.

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The Natural Lift Curves for the Spherical Indicatrices of Spacelike Bertrand Couple in Minkowski 3-Space

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Abstract. In this paper, we introduce the natural lift curves for the spherical indicatrices of the Bertrand mates of spacelike curves on the tangent bundle $T\left(S_1^2\right)$ or $T\left(H_0^2\right)$ in Minkowski 3-space and we give some new characterizations for these curves. Additionally we illustrate two examples of our main results.

Keywords. Bertrand curve, natural lift curve, geodesic spray, spherical indicatrix

AMS 2010. 53B30, 53C50.

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Characterizations of the Quaternionic Mannheim Curves in Euclidean Space E^4

Osman Zeki Okuyucu[1]

Abstract. In [5], Matsuda and Yorozu obtained that Mannheim curves in 4-dimensional Euclidean space. In this study, we define quaternionic Mannheim curves and we give some characterizations of them in Euclidean 3-space and 4-space.

Keywords. Quaternion algebra, Mannheim curve, Euclidean space.

AMS 2010. 11R52, 53A04.

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Weingarten Tube Surfaces with Null Curve

Pelin Poşpoş[1] and F. Nejat Ekmekci[2]

Abstract. In this paper, we study a tube surface with null curve in a Minkowski 3-space, moreover, we have discussed the conditions of being Weingarten for this surfaces with respect to their curvatures; the mean curvature H and Gauss curvature K.

Keywords. Tube surfaces, Weingarten conditions, null curve, Curvatures.

AMS 2010. 53A05, 53B25.

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Normal and Rectifying Curves in the Equiform Geometry of the Galilean 3-Space

Sezai Kızıltuğ[1], Semra Yurttançıkmaz[2] and Ali Çakmak[3]

Abstract. In this study, we define normal and rectifying curves in the equiform geometry of the Galilean space. Furthermore, we obtain some characterizations for normal and rectifying curves in the equiform geometry of the Galilean space G.

Keywords. Normal curve,Rectifyingcurve, Equiformgeomertry, Galileanspace.

AMS 2010. 53A04, 53A35.

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On the Spacelike Surfaces Geometry

Sümeyye Gür[1] and Süleyman Şenyurt[2]

Abstract. In this paper, by considering $v = \text{constant}$ and $u = \text{constant}$ parameter curves, (c_1) and (c_2) respectively, and any curve, (c) passing thorough the intersection point of these parameter curves, we have found the Darboux instantaneous rotation vectors of Darboux trihedrons of these three curves, as following

$$w_1 = \left(\frac{1}{(T_g)_1} + \frac{\cos\theta}{\sin\theta (R_n)_1} \right) t_1 - \frac{1}{\sin\theta (R_n)_1} t_2 - \frac{1}{(R_g)_1} N$$

$$w_2 = \frac{1}{\sin\theta (R_n)_2} t_1 + \left(\frac{1}{(T_g)_2} - \frac{\cos\theta}{\sin\theta (R_n)_2} \right) t_2 - \frac{1}{(R_g)_2} N$$

$$w = \frac{1}{\sin\theta} \left(\frac{\sin(\theta-\varphi)}{T_g} + \frac{\cos(\theta-\varphi)}{R_n} \right) t_1 + \frac{1}{\sin\theta} \left(\frac{\sin\varphi}{T_g} - \frac{\cos\varphi}{R_n} \right) t_2 - \frac{1}{R_g} N$$

and we have obtained the relationship between these vectors

$$w = \frac{\sin(\theta - \varphi)}{\sin\theta} w_1 + \frac{\sin\varphi}{\sin\theta} w_2 - \frac{d\varphi}{ds} N$$

Here, θ and φ are the spacelike angle between tangent vectors of (c_1) and (c_2) curves, (c) and (c_1) curves, respectively, and N is unit normal vector of the surface. Besides, we have given Euler, Liouville, O. Bonnet formulas and Gauss curvature of the spacelike surface with new statement.

Keywords. Spacelike surface, parameter curves, Dorboux intantaneous rotation vector

AMS 2010. 53A40, 53B30.

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A New Version of Mannheim Curves in Terms of Inextensible Flows in E^3

Talat Körpınar[1], Essin Turhan[2] and Gülden Altay[3]

Abstract. In this work, we study the properties of the Mannheim curves in terms of inextensible flows in E^3. Using the Frenet frame of the given curve, we present partial differential equations. We give some characterizations for curvatures of a curve in E^3. Additionally, we illustrate our results in Fig.1-4.

Keywords. Mannheim curve, Fluid flow, E^3, Partial differential equation.

AMS 2010. 31B30, 58E20

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New Characterizations of Weingarten Pencil Surfaces In E^3

Talat Körpınar[1],Muhammed Talat Sarıaydın[2] and Selçuk Baş[3]

Abstract. In this paper, we study Weingarten condition of pencil surface in E^3. Firstly, we give first and second fundemental form of pencil surface P. Finally, we give new theorem for linear Weingarten pencil surface P in E^3.

Keywords. W-Surface, Gaussian Curvature, Pencil Surface.

AMS 2010. 14Q10, 14J25.

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Timelike Surface in De-Sitter Space

Tuğba Mert[1] and Baki Karlığa[2]

Abstract. In this paper; using the angle between unit normal vector field of surface and a fixed spacelike and timelike axis in R_1^4, we develop two class of timelike surface which are called constant timelike angle with timelike axis and spacelike angle with spacelike axis in de-Sitter space S_1^3.

Keywords. Constant Angle, Timelike Surface, de-Sitter Space

AMS 2010. 53A40, 20M15.

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110	Arş. Gör.	Ergin BAYRAM	Ondokuz Mayıs Üniversitesi
111	Arş. Gör.	Esma DEMİR ÇETİN	Nevşehir Hacı Bektaş Veli Üniversitesi
112	Arş. Gör.	Esra ERKAN	Yıldız Teknik Üniversitesi
113	Arş. Gör.	Fatma GÖKÇELİK	Ankara Üniversitesi
114	Arş. Gör.	Fatma GÜLER	Ondokuz Mayıs Üniversitesi
115	Arş. Gör.	Fatma ÖZEN ERDOĞAN	Uludağ Üniversitesi
116	Arş. Gör.	Fatma YILMAZ	Gazi Üniversitesi
117	Arş. Gör.	Gülnur ŞAFFAK ATALAY	Ondokuz Mayıs Üniversitesi
118	Arş. Gör.	Gülsüm Yeliz SAÇLI	Yıldız Teknik Üniversitesi
119	Arş. Gör.	Gülşah AYDIN	Süleyman Demirel Üniversitesi
120	Arş. Gör.	Hidayet Hüda KÖSAL	Sakarya Üniversitesi
121	Arş. Gör.	İlim KİŞİ	Kocaeli Üniversitesi
122	Arş. Gör.	İrem KÜPELİ ERKEN	Uludağ Üniversitesi

123	Arş. Gör.	Maya ALTINOK	Ahi Evran Üniversitesi
124	Arş. Gör.	Mehmet GÜLBAHAR	İnönü Üniversitesi
125	Arş. Gör.	Melek ERDOĞDU	Necmettin Erbakan Üniversitesi
126	Arş. Gör.	Merve İLKHAN	Düzce Üniversitesi
127	Arş. Gör.	Muhammed Talat SARIAYDIN	Muş Alparslan Üniversitesi
128	Arş. Gör.	Murat BEKAR	Necmettin Erbakan Üniversitesi
129	Arş. Gör.	Nergiz ÖNEN	Çukurova Üniversitesi
130	Arş. Gör.	Nurten GÜRSES BAYRAK	Yıldız Teknik Üniversitesi
131	Arş. Gör.	Önder Gökmen YILDIZ	Bilecik Şeyh Edebali Üniversitesi
132	Arş. Gör.	Ömer AKGÜLLER	Muğla Sıtkı Koçman Üniversitesi
133	Arş. Gör.	Pelin POŞPOŞ	Aksaray Üniversitesi
134	Arş. Gör.	Rabia ÇAKAN	Atatürk Üniversitesi
135	Arş. Gör.	Sezgin BÜYÜKKÜTÜK	Kocaeli Üniversitesi
136	Arş. Gör.	Sibel SEVİNÇ	Cumhuriyet Üniversitesi
137	Arş. Gör.	Şaban GÜVENÇ	Balıkesir Üniversitesi
138	Arş. Gör.	Şemsi EKEN	Karadeniz Teknik Üniversitesi
139	Arş. Gör.	Temel ERMİŞ	Eskişehir Osmangazi Üniversitesi
140	Arş. Gör.	Tülay ERİŞİR	Sakarya Üniversitesi
141	Öğr. Gör.	Ahmet KAZAN	Adıyaman Üniversitesi
142	Öğr. Gör.	Efruz Özlem MERSİN	Aksaray Üniversitesi
143	Öğr. Gör.	Esra DAMAR	Hitit Üniversitesi
144	Öğr. Gör.	Kadir İÇAÇAN	Adıyaman Üniversitesi
145	Öğr. Gör.	Ramazan LEYLEK	Ahi Evran Üniversitesi
146	Öğr. Gör.	Ramazan ŞİMŞEK	Bayburt Üniversitesi
147	Öğr. Gör.	Simge DAĞLI	Pamukkale Üniversitesi
148	Öğr. Gör.	Zeki KASAP	Pamukkale Üniversitesi
149	Öğrenci (Doktora)	Hakan ŞİMŞEK	Akdeniz Üniversitesi
150	Öğrenci (Doktora)	Hasibe İKİZ	Erciyes Üniversitesi
151	Öğrenci (Doktora)	Hatice ALTIN ERDEM	Kırıkkale Üniversitesi
152	Öğrenci (Doktora)	Hatice TOZAK	Eskişehir Osmangazi Üniversitesi
153	Öğrenci (Doktora)	Mesut ALTINOK	Ahi Evran Üniversitesi

154	Öğrenci (Doktora)	Nihal KILIÇ ASLAN	Kırıkkale Üniversitesi
155	Öğrenci (Doktora)	Serkan KULOĞLU	Balıkesir Üniversitesi
156	Öğrenci (Doktora)	Sümeyye GÜR	Ordu Üniversitesi
157	Yüksek Lisans Mezunu	Ayşe Asuman ÇITLAK	Gazi Üniversitesi
158	Yüksek Lisans Mezunu	Oğuzhan ÇELİK	Çanakkale Onsekiz Mart Üniversitesi
159	Öğrenci (Y.L.)	Ali YAKAR	Mersin Üniversitesi
160	Öğrenci (Y.L.)	Bekir KARAOĞLU	Akdeniz Üniversitesi
161	Öğrenci (Y.L.)	Benen AKINCI	Ahi Evran Üniversitesi
162	Öğrenci (Y.L.)	Betül PELTEK	Gazi Üniversitesi
163	Öğrenci (Y.L.)	Gizem CANSU	Ankara Üniversitesi
164	Öğrenci (Y.L.)	Lütfullah Bilal KORKMAZ	Çanakkale Onsekiz Mart Üniversitesi
165	Öğrenci (Y.L.)	Neslihan CABACI	Sakarya Üniversitesi
166	Öğrenci (Y.L.)	Özgür KESKİN	Niğde Üniversitesi
167	Öğrenci (Y.L.)	Tuğba TAMİRCİ	Niğde Üniversitesi
168	Öğrenci (Y.L.)	Vahit ZAMBAK	Bartın Üniversitesi
169	Öğrenci (Y.L)	Zekiye AYDIN	Dokuz Eylül Üniversitesi
170	Uzm. Öğretmen	Furkan YILDIRIM	Atatürk Üniversitesi
171	Öğretmen	Selçuk BAŞ	Fırat Üniversitesi
172		Müslüm Aykut AKGÜN	İnönü Üniversitesi
173	Öğrenci (Lisans)	Çağlar Zeki ODABAŞI	Erciyes Üniversitesi
174	Öğrenci (Lisans)	Murat Ali GÜLTEKİN	Erciyes Üniversitesi

XII. GEOMETRİ SEMPOZYUMU

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http://geometrisempozyumu.bilecik.edu.tr/