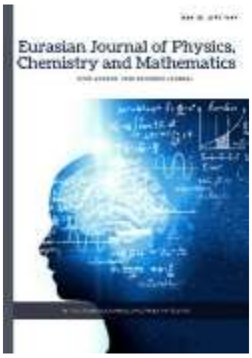

M – Projective Curvature Tensor of Nearly Kahler Manifold

Ali Khalaf Ali[1]
[1,2]Department of Mathematics, College of Education for Pure Sciences, Tikrit University, Tikrit, Iraq- University of Tikrit , Iraq Salahaddin

A. A. Shihab[2]
[1,2]Department of Mathematics, College of Education for Pure Sciences, Tikrit University, Tikrit, Iraq- University of Tikrit , Iraq Salahaddin
Shihabdraliabd@tu.edu.iq

Dr.prof .Ali Abdul Al Majeed
ali.abd82@yahoo.com

ABSTRACT

The geometrical characteristics of one of the NK ('' Nearly Kahler '')manifold structures are provided by M, where M represents for the Nearly kahler manifold, and the M-Projective Curvature Tensor
In this work, we study the properties of a virtually kahler manifold. Important findings of the study include the following: - It was shown that this tensor had the standard properties of Riemannian curvature symmetry. Projective tensor (M- tensor) components to be calculated for the NK manifold. Links between this manifold's tensor components were created after certain observations were made.
For these components M_0 , M_1, M_2, M_3, M_4, M_5 ,M_6, M_7, of basically kahler is haler manifold, provide a neutral equation.

Keywords: M-Projective Tensor , Nearly kahler manifold.

Introduction

In essence, the Kahler structure is one of differential geometry's most recognizable works, and the Riemannien structures feature a number of conformal transformations that are crucial study topics in "differential geometry" since they maintain the smoothness of harmonic functions. Projective curvature tensor M is described by R. N. Singh and Shravan K. Panday [6].
where R and g, respectively, represent the Ricci tensor and the so-called Riemannian curvature tensor.
In 1975, Russian researcher Kirichenko developed a new method for examining the various classes of NK ("Nearly Kahler ")manifolds, based on M with structure group being the unitary group U.(n). These spaces are referred to as adjoined G-structure spaces. Kirichenko used adjoined G-structure space to obtain two tensors from the NK ("Nearly Kahler")-manifold: the structure and virtual tensors [4]. In establishing the NK ("Nearly Kahler ")manifold structure group, he was supported by these tensors. Banaru [1] defined the sixteen types of Nearly Kahler manifolds in 1993 using the structure and Virtual tensors, also known as Kirichenko's tensors [5].

Preliminaries

Let M be a smooth 2n dimension manifold,$C^\infty(M)$- soft function algebra on M; α(M)vector fields of smoothness module on "manifold" of M; g = <.,.> - Riemannian metrics is a Riemannian metrics link g onM, d: the element of distinction from the outside. The smooth class is assumed for all manifolds, Tensor fields, and other objects C in the following. The structure of NK ("nearly kahler") on the "(manifold M)" is a pair "(Q,g)" where Q: represents the structure of the almost complicated ("$Q^2 = id$") onM, g=<.,.> represents the Riemannian "(pseudo)" metric on M, where in this case $<Q\alpha,Q\beta> = <\alpha,\beta>$; $\alpha,\beta \in \alpha(M)$.

Let M be a n1-dimensional 2n-dimensional smooth manifold. On M, C(M) is a smooth function algebra., and α(M) is the vector field module on M. The Riemannian connection of the metric is denoted by g, while the exterior differentiation is denoted by d.

Theorem 1 [3]

The following are the components of the Riemannian curvature in adjoint G-structure space, the tensor of the NK-manifold:

1) $R^{a}_{bcd} = R^{a}_{b\hat{c}\hat{d}} = R^{\hat{a}}_{\hat{b}cd} = R^{\hat{a}}_{\hat{b}\hat{c}\hat{d}} = R^{\hat{a}}_{bcd} = R^{\hat{a}}_{bc\hat{d}} = R^{\hat{a}}_{b\hat{c}d} = R^{a}_{\hat{b}\hat{c}\hat{d}} = R^{a}_{\hat{b}c\hat{d}} = R^{a}_{\hat{b}\hat{c}\hat{d}} = 0$
2) $R^{a}_{bc\hat{d}} = B^{adh}B_{hbc} + A^{ad}_{bc}$
3) $R^{a}_{b\hat{c}d} = B^{adc}B_{bdh} - A^{ac}_{bd}$
4) $R^{\hat{a}}_{\hat{b}c\hat{d}} = B^{bdh}B_{ahc} - A^{bd}_{ac}$
5) $R^{\hat{a}}_{\hat{b}\hat{c}d} = B^{bch}B_{adh} + A^{bc}_{ad}$
6) $R^{\hat{a}}_{b\hat{c}\hat{d}} = 2B^{dch}B_{abh}$
7) $R^{a}_{\hat{b}cd} = 2B^{abh}B_{dch}$

Theorem 2 [2]

The following forms in the adjoint G- structural space represent the components of the Ricci tensor of the NK-manifold:

1) $r_{ab} = r_{\hat{a}\hat{b}} = 0$;
2) $r_{\hat{a}b} = 3B^{cah}B_{hbc} - A^{ac}_{cb}$;
3) $r_{a\hat{b}} = 3B_{cah}B^{cbh} - A^{cb}_{ac}$.

Definition3 [6]

The from defines the M- projective curvature tensor . :

$$\mathbf{M_{ijkl} = R_{ijkl} - \frac{1}{2(n-1)}\,[S_{jk}\, g_{il} - S_{ik}\, g_{jl} + g_{jK}S_{il} - g_{iK}S_{jl}]}$$

The Riemannian curvature tensor and the Ricci tensor, respectively, are R and S.

Remark4

Thus, the projective tensor satisfies all of the algebraic curvature tensor's characteristics.:

1)$M(\propto,\beta,\theta,\gamma) = -M(\beta,\propto,\theta,\gamma)$;
2)$M(\propto,\beta,\theta,\gamma) = -M(\propto,\beta,\gamma,\theta)$;
3)$M(\propto,\beta,\theta,\gamma) + M(\beta,\theta,\propto,\gamma) + M(\theta,\propto,\beta,\gamma) = 0$;
4)$M(\propto,\beta,\theta,\gamma) = M(\theta,\gamma,\propto,\beta)$; $\propto,\beta,\theta,\gamma \in \propto(M)$. (4)

Proof: :- we shall prove (1)

$$M(\alpha,\beta,\theta,\gamma)=R(\alpha,\beta,\theta,\gamma) - \frac{1}{2(n-1)}\,[S(\beta,\theta)g(\alpha,\gamma) - S(\alpha,\theta)g(\beta,\gamma) + g(\beta,\theta)S(\alpha,\gamma) - g(\alpha,\theta)S(\beta,\gamma)]$$

$$=-R(\beta,\alpha,\theta,\gamma) + \frac{1}{2(n-1)}\,[-S(\beta,\theta)g(\alpha,\gamma) + S(\alpha,\theta)g(\beta,\gamma) - g(\beta,\theta)S(\alpha,\gamma) + g(\alpha,\theta)S(\beta,\gamma)]$$

$$= -M(\beta,\propto,\theta,\gamma)$$

Properties are similarly proved :

2)$M(\propto,\beta,\theta,\gamma) = -M(\propto,\beta,\gamma,\theta)$;
3)$M(\propto,\beta,\theta,\gamma) + M(\beta,\theta,\propto,\gamma) + M(\theta,\propto,\beta,\gamma) = 0$;
4)$M(\propto,\beta,\theta,\gamma) = M(\theta,\gamma,\propto,\beta)$;

Covarient projective tensor M type (3,1) have form

$$M(\propto,\beta)\,\theta = R(\propto,\beta)\theta + \frac{1}{2N-1}\{<\propto,\theta>\beta - <\beta,\theta>\propto\}$$

Where R is the Riemannian curvature tensor and $\propto$ is the Scalar Curvature, $\propto, \beta, \theta \in \propto (M)$

Remark 5

By definition of a spectrum tensor.

$M(\propto,\beta)\theta = M(\propto,\beta)\theta + M_1(\propto,\beta)\theta + M_2(\propto,\beta)\theta + M_3(\propto,\beta)\theta +$
$M_4(\propto,\beta)\theta + M_5(\propto,\beta)\theta + M_6(\propto,\beta)\theta + M_7(\propto,\beta)\theta; \quad \propto, \beta\ \theta, \in \propto (M).$

tensor $M_0(\propto,\beta)\theta$ as nonzero-The component can have only components of the form $\{M_{0\ bcd}^{a}, M_{0\ \hat{b}\hat{c}\hat{d}}^{\hat{a}}\} = \{M^{a}_{bcd}, M^{\hat{a}}_{\hat{b}\hat{c}\hat{d}}\}$;

tensor $M_1(\propto,\beta)\theta$ - components of the form $\{M_{1\ bc\hat{d}}^{a}, M_{1\ \hat{b}\hat{c}d}^{\hat{a}}\} = \{M^{a}_{bc\hat{d}}, M^{\hat{a}}_{\hat{b}\hat{c}d}\}$;

tensor $M_2(\propto,\beta)\theta$ - components of the form $\{M_{2\ b\hat{c}d}^{a}, M_{2\ \hat{b}c\hat{d}}^{\hat{a}}\} = \{M^{a}_{b\hat{c}d}, M^{\hat{a}}_{\hat{b}c\hat{d}}\}$;

tensor $M_3(\propto,\beta)\theta$ - components of the form $\{M_{3\ b\hat{c}\hat{d}}^{a}, M_{3\ \hat{b}cd}^{\hat{a}}\} = \{M^{a}_{b\hat{c}\hat{d}}, M^{\hat{a}}_{\hat{b}cd}\}$;

tensor $M_4(\propto,\beta)\theta$ - components of the form$\{M_{4\ \hat{b}cd}^{a}, M_{4\ b\hat{c}\hat{d}}^{\hat{a}}\} = \{M^{a}_{\hat{b}cd}, M^{\hat{a}}_{\ b\hat{c}\hat{d}}\}$;

tensor $M_5(\propto,\beta)\theta$ - components of the form $\{M_{5\ \hat{b}c\hat{d}}^{a}, M_{5\ b\hat{c}d}^{\hat{a}}\} = \{M^{a}_{\hat{b}c\hat{d}}, M^{\hat{a}}_{b\hat{c}d}\}$;

tensor $M_6(\alpha,\beta)\theta$ - components of the form $\{M_{6\ \hat{b}\hat{c}d}^{a}, M_{6\ bc\hat{d}}^{\hat{a}}\} = \{M_{6\ \hat{b}\hat{c}d}^{a}, M_{6\ bc\hat{d}}^{\hat{a}}\}$;

tensor $M_7(\alpha,\beta)\theta$ - components of the form$\{M_{7\ \hat{b}\hat{c}\hat{d}}^{a}, M_{7\ bcd}^{\hat{a}}\} = \{M^{a}_{\hat{b}\hat{c}\hat{d}}, M^{\hat{a}}_{bcd}\}$.

Tensors$M_0 = M_0(\alpha,\beta)\theta$, $M_1 = M_1(\alpha,\beta)\theta$, …,$M_7 = M_7(\alpha,\beta)\theta$.

The basic invariants projective NK-manifold will be named.

Definition 6

NK ('' Nearly Kahler '') - manifold for whichM_i=0 is NK ('' Nearly Kahler '') -manifold of classM_i, i = 0, 1, …, 7.

Theorem 7

1)NK ('' Nearly Kahler '') -manifold of classM_0 characterized by identity

$M(\alpha,\beta)\theta - M(\alpha,Q\beta)Q\theta - M(Q\alpha,\beta)Q\theta - M(Q\alpha,Q\beta)\theta - QM(\alpha,\beta)Q\theta - QM(\alpha,Q\beta)\theta - QM(Q\alpha,\beta)\theta + QM(Q\alpha,Q\beta)Q\theta = 0, \quad \alpha,\beta,\theta \in \alpha(M). \qquad (5)$

2) NK ('' Nearly Kahler '')- manifold of class M_1characterized by identity

$M(\alpha,\beta)\theta + M(\alpha,Q\beta)Q\theta - M(Q\alpha,\beta)Q\theta + M(Q\alpha,Q\beta)\theta + QM(\alpha,\beta)Q\theta - QM(\alpha,Q\beta)\theta - QM(Q\alpha,\beta)\theta - QM(Q\alpha,Q\beta)Q\theta = 0, \quad \alpha,\beta,\theta \in \alpha(M).) \qquad (6)$

3) NK ('' Nearly Kahler '')- manifold of classM_2 characterized by identity

$M(\alpha,\beta)\theta - M((\alpha,Q\beta)Q\theta + M(Q\alpha,\beta)Q\theta + M(Q\alpha,Q\beta)\theta - QM(\alpha,\beta)Q\theta - QM(\alpha,Q\beta)\theta + QM(Q\alpha,\beta)\theta - QM(Q\alpha,Q\beta)Q\theta = 0, \quad \alpha,\beta,\theta \in \alpha(M). \qquad (7)$

4) NK ('' Nearly Kahler '') - manifold of classM_3 characterized by identity

$M(\alpha,\beta)\theta + M((\alpha,Q\beta)Q\theta + M(Q\alpha,\beta)Q\theta - M(Q\alpha,Q\beta)\theta - QM(\alpha,\beta)Q\theta + QM(\alpha,Q\beta)\theta + QM(Q\alpha,\beta)\theta + QM(Q\alpha,Q\beta)Q\theta = 0, \quad \alpha,\beta,\theta \in \alpha(M). \qquad (8)$

5) NK ('' Nearly Kahler '') - manifold of classM_4 characterized by identity

$M(\alpha,\beta)\theta + M((\alpha,Q\beta)Q\theta + M(Q\alpha,\beta)Q\theta - M(Q\alpha,Q\beta)\theta + QM(\alpha,\beta)Q\theta - QM(\alpha,Q\beta)\theta - QM(Q\alpha,\beta)\theta - QM(Q\alpha,Q\beta)Q\theta = 0, \quad \alpha,\beta,\theta \in \alpha(M). \qquad (9)$

6) NK ('' Nearly Kahler '')- manifold of classM_5 characterized by identity

$M(\alpha,\beta)\theta - M((\alpha,Q\beta)Q\theta + M(Q\alpha,\beta)Q\theta + M(Q\alpha,Q\beta)\theta + QM(\alpha,\beta)Q\theta + QM(\alpha,Q\beta)\theta - QM(Q\alpha,\beta)\theta + QM(Q\alpha,Q\beta)Q\theta = 0, \quad \alpha,\beta,\theta \in \alpha(M). \qquad (10)$

7) NK ('' Nearly Kahler '')- manifold of classM_6 characterized by identity

$M(\alpha,\beta)\theta + M((\alpha,Q\beta)Q\theta - M(Q\alpha,\beta)Q\theta + M(Q\alpha,Q\beta)\theta + QM(\alpha,\beta)Q\theta - QM(\alpha,Q\beta)\theta + QM(Q\alpha,\beta)\theta + QM(Q\alpha,Q\beta)Q\theta = 0, \quad \alpha,\beta,\theta \in \alpha(M). \qquad (11)$

8) NK ('' Nearly Kahler '')- manifold of classM_7 characterized by identity

$M(\alpha,\beta)\theta - M(\alpha,Q\beta)Q\theta - M(Q\alpha,\beta)Q\theta - M(Q\alpha,Q\beta)\theta + QM(\alpha,\beta)Q\theta + QM(\alpha,Q\beta)\theta + QM(Q\alpha,\beta)\theta - QM(Q\alpha,Q\beta)Q\theta = 0, \quad \alpha,\beta,\theta \in \alpha(M). \qquad (12)$

Proof:-

1) Let NK- manifold of classM_0 , the manifold of classM_0characterized by a condition

$M_{0\ bcd}^{a} = 0$, or $M^{a}_{bcd} = 0$.

i.e. $[M(\varepsilon_c, \varepsilon_d)\varepsilon_b]^a \varepsilon_a$.

As σ - a projector on $D_Q^{\sqrt{-1}}$, that $\sigma \circ \{M(\sigma\alpha, \sigma\beta)\sigma\alpha\} = 0$;
i.e $(id\text{-}\sqrt{-1}\,Q)\{M(\alpha - \sqrt{-1}\,Q\alpha, \beta - \sqrt{-1}\,Q\beta)(\theta - \sqrt{-1}Q\theta)\} = 0$.
Eliminating the brackets could be received:
i.e.
$M(\alpha,\beta)\theta - M((\alpha, Q\beta) - M(Q\alpha,\beta)Q\theta - M(Q\alpha, Q\beta)\theta - QM(\alpha,\beta)Q\theta - QM(Q\alpha,\beta) + QM(Q\alpha, Q\beta)Q\theta - \sqrt{-1}\{ M(\alpha,\beta)Q\theta + M((\alpha, Q\beta)\theta + M(Q\alpha,\beta)\theta - M(Q\alpha, Q\beta)Q\theta\} - \{QM(\alpha,\beta)\theta - QM(\alpha, Q\beta)Q\theta - QM(Q\alpha,\beta)Q\theta - QM(Q\alpha, Q\beta)\theta\} = 0$.
i.e
1) $M(\alpha,\beta)\theta - M(\alpha, Q\beta)Q\theta - M(Q\alpha,\beta)Q\theta - M(Q\alpha, Q\beta)\theta - QM(\alpha,\beta)Q\theta - QM(\alpha, Q\beta)\theta - QM(Q\alpha,\beta)\theta + QM(Q\alpha, Q\beta)Q\theta = 0$; (13)
2) $M(\alpha,\beta)Q\theta + M(\alpha, Q\beta)\theta + M(Q\alpha,\beta)\theta - M(Q\alpha, Q\beta)Q\theta + QM(\alpha,\beta)\theta - QM(\alpha, Q\beta)Q\theta - QM(Q\alpha,\beta)Q\theta - QM(Q\alpha, Q\beta)Q\theta = 0$; (14)
These equations (13) and (14)are interchangeable The first replacement yields the second equality. θ onQθ .
Thus NK ('' Nearly Kahler '') -identity characterizes a class M_0 manifold
$M(\alpha,\beta)\theta - M(\alpha, Q\beta)Q\theta - M(Q\alpha,\beta)Q\theta - M(Q\alpha, Q\beta)\theta - QM(\alpha,\beta)Q\theta - QM(\alpha, Q\beta)\theta - QM(Q\alpha,\beta)\theta + QM(Q\alpha, Q\beta)Q\theta = 0, \ \alpha,\beta,\theta \ \alpha(M)$. (15)
Similarly considering NK ('' Nearly Kahler '') -manifold of classes M_1-M_7 can be received the 2,3,4,5,6,7 and 8.

Theorem8

We have the following inclusion relations
1) $M_0 = M_3 = M_4 = M_5 = M_6 = M_7$.
2) $M_1 = - M_2$.

Proof:

1)We shall prove $M_5 = M_6$and similarly, the other will be proven.
For an example, proving equality
Let (M, Q, g) be NK- manifold of class M_5 , i.e $M^a_{\hat{b}c\hat{d}}$.
Then according to (4)we have $M^a_{\hat{b}\hat{c}d} = 0$, i.e. TheNK- manifold is manifold of classM_6Back, letM –NK-manifold of classM_6, then $M^a_{\hat{b}\hat{c}d}$, so, according to (4) and $M^a_{\hat{b}c\hat{d}}$ =0.
Thus, classes M_5 and M_6 of NK-manifold are coincide.
2)Prove inclusion $M_1 = -M_2$.
Let (M, Q, g)-NK-manifold of a class M_2,i.e. take place equality $M^a_{bc\hat{d}} = M^a_{b\hat{d}c} = o$. According to property (4)we have:
$M^a_{\hat{b}cd} + M^a_{cd\hat{b}} + M^a_{d\hat{b}c} = 0$, i.e $M^a_{\hat{b}cd} = 0$.This the NK-manifold of a class $M_1 = -M_2$ is NK-manifold.
Putting equality (6)and (7) we shall receive identity describingAH- manifold of class$M_1 = - M_2$
$M(\alpha,\beta)\theta + M(Q\alpha, Q\beta)\theta + QM(\alpha,\beta)Q\theta - QM(Q\alpha, Q\beta)Q\theta = 0$; $\alpha,\beta,\theta \in \alpha(M)$
(16)
From equality (5), (8), (10), (11)we shall receive the identity describingNK- manifold of classes$M_0 = M_3 = M_5 = M_6$
$M(\alpha,\beta)\theta + QM(Q\alpha, Q\beta)Q\theta = 0; \alpha,\beta,\theta \in \alpha(M)$. (17)

Theorem 9

The following equations describes the components of the projective tensor of NK-manifold in the adjoined G-structure: -1)$M_{\hat{a}\hat{b}\hat{c}d} = B^{adc}B_{bdh} - A^{ac}_{bd} - \frac{1}{2n-1}[(3B_{dbh}B^{dch} - A^{dc}_{bd})\delta^a_d + 3B_{bah}B^{bdh} - A^{bd}_{ab})\delta^b_d]$
2)$M_{\hat{a}bc\hat{d}} = B^{adh}B_{hbc} + A^{ad}_{bc} - \frac{1}{2n-1}(-3B^{bah}B_{hbC} + A^{ab}_{bc})\delta^d_b - (3B_{abh}B^{adh} - A^{ad}_{bd})\delta^a_c$.
And the others are either conjugate of the above components. , or equal to zero

Proof

By using Theorems (1) we compute the components of projective tensor as the following :

1) Put $i = a, j = b, k = c, l = d$

$M_{abcd} = R_{abcd} - \frac{1}{2(n-1)}[S_{bc}\, g_{ad} - S_{ac}\, g_{bd} + g_{bc}S_{ad} - g_{ac}S_{bd}]$

$$M_{abcd} = 0$$

2) Put $i = \hat{a}, j = b, k = c, l = d$

$M_{\hat{a}bcd} = R_{\hat{a}bcd} - \frac{1}{2(n-1)}[S_{bc}\, g_{\hat{a}d} - S_{\hat{a}c}\, g_{bd} + g_{bc}S_{\hat{a}d} - g_{\hat{a}c}S_{bd}]$

$$M_{\hat{a}bcd} = 0$$

3) Put $i = a, j = \hat{b}, k = c$ and $l = d$

$M_{a\hat{b}cd} = R_{a\hat{b}cd} - \frac{1}{2(n-1)}[S_{\hat{b}c}\, g_{ad} - S_{ac}\, g_{\hat{b}d} + g_{\hat{b}c}S_{ad} - g_{ac}S_{\hat{b}d}]$

$$M_{a\hat{b}cd} = 0$$

4) Put $i = a, j = b, k = \hat{c}$, and $l = d$

$M_{ab\hat{c}d} = R_{ab\hat{c}d} - \frac{1}{2(n-1)}[S_{b\hat{c}}\, g_{ad} - S_{a\hat{c}}\, g_{bd} + g_{b\hat{c}}S_{ad} - g_{a\hat{c}}S_{bd}]$

$$M_{ab\hat{c}d} = 0$$

5) Put $i = a, j = b, k = c$ and $l = \hat{d}$

$M_{abc\hat{d}} = R_{abc\hat{d}} - \frac{1}{2(n-1)}[S_{bc}\, g_{a\hat{d}} - S_{ac}\, g_{b\hat{d}} + g_{bc}S_{a\hat{d}} - g_{ac}S_{b\hat{d}}]$

$$M_{abc\hat{d}} = 0$$

6) Put $i = \hat{a}, j = \hat{b}, k = c, l = d$

$M_{\hat{a}\hat{b}cd} = R_{\hat{a}\hat{b}cd} - \frac{1}{2(n-1)}[S_{\hat{b}c}\, g_{\hat{a}d} - S_{\hat{a}c}\, g_{\hat{b}d} + g_{\hat{b}c}S_{\hat{a}d} - g_{\hat{a}c}S_{\hat{b}d}]$

$M_{\hat{a}\hat{b}cd} = 0$

7) Put $i = \hat{a}, j = b, k = \hat{c}$ and $l = d$

$M_{\hat{a}b\hat{c}d} = R_{\hat{a}b\hat{c}d} - \frac{1}{2(n-1)}[S_{b\hat{c}}\, g_{\hat{a}d} - S_{\hat{a}\hat{c}}\, g_{bd} + g_{b\hat{c}}S_{\hat{a}d} - g_{\hat{a}\hat{c}}S_{bd}]$

$$M_{\hat{a}b\hat{c}d} = B^{adc}B_{bdh} - A^{ac}_{bd} - \frac{1}{2n-1}[(3B_{dbh}B^{dch} - A^{dc}_{bd})\delta^a_d + (3B_{bah}B^{bdh} - A^{bd}_{ab})\delta^b_d]$$

8) Put $i = \hat{a}, j = b, k = c$ and $l = \hat{d}$

$M_{\hat{a}bc\hat{d}} = R_{\hat{a}bc\hat{d}} - \frac{1}{2(n-1)}[S_{bc}\, g_{\hat{a}\hat{d}} - S_{\hat{a}c}\, g_{b\hat{d}} + g_{bc}S_{\hat{a}\hat{d}} - g_{\hat{a}c}S_{b\hat{d}}]$

$M_{\hat{a}bc\hat{d}} = B^{adh}B_{hbc} + A^{ad}_{bc} - \frac{1}{2n-1}(-3B^{bah}B_{hbC} + A^{ab}_{bc})\delta^d_b - (3B_{abh}B^{adh} - A^{ad}_{bd})\delta^a_c.$

Properties 10

From the above theorem 9, it is clear that components tensor of M – Projective Curvature Tensor of nearly kahler manifold have the following properties:

1) $M_0 = M_3 = M_4 = M_5 = M_6 = M_7 = 0$

2) $M_1 = -M_2$

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تنسر الاسقاط من النوع M في منطوي كوهلر التقريبي

علي خلف علي,[1] الاستاذ الدكتور علي عبد المجيد شهاب[2]
1)جامعة تكريت -كلية التربية للعلوم الصرفة-قسم الرياضيات , العراق – صلاح الدين-تكريت
البريد الالكتروني ali.khalaf.ali@st.tu.edu.iq
2) الاستاذ الدكتور علي عبد المجيد شهاب
جامعة تكريت - كلية التربية للعلوم الصرفة ,العراق صلاح الدين –تكريت .
البريد الالكتروني draliabd@tu.edu.iq,ali.abd 82@yaho.com

المستخلص
في هذه الرسالة ندرس التنزر الاسقاطي من نوع M لمنطوي كوهلر التقريبي بمعنى اخر الخصائص الهندسية لاحد تراكيب لمنطوي الهرميتي التقريبي ويرمز له بالرمز M_1 حيث M_1 تشير الى منطوي كوهلر التقريبي .
اهم النتائج المستخلصة من هذه الدراسة هي :
البرهنة على ان هذا التنزر يمتلك خصائص التناظر الكلاسيكية لانحناء ريمان ,حساب مكونات التنزر الاسقاطي (M-P-tensor) في منطوي كوهلرالتقريبي,الحصول على بعض النتائج وتوطيد العلاقة بين مكونات هذا التنزر في هذا المنطوي, الحصول على معادلة محايدة لكل M_0 , M_1, M_2, M_3, M_4, M_5 ,M_6, M_7 في منطوي كوهلر التقريبي .