

Warped product semi-slant submanifolds in locally conformal Kaehler manifolds, II

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In the last conference (2017, Odessa), we defined 2 type warped product semi-slant submanifolds in an almost Hermitian manifold and we considered these submanifolds in a locally conformal Kaehler (an l.c.K.-) manifold and mainly considered some properties of the first type warped product semi-slant submanifold in an l.c.K.-manifold.

In this talk, we consider a same submanifold with the parallel second fundamental form in an l.c.K.-space form (an l.c.K.-manifold with a constant holomorphic sectional curvature). Using Codazzi equation, we partially determine the tensor field P which defined in the curvature tensor field of an l.c.K.-space form. Finally, we consider T , F and t .

REFERENCES

- [1] A.Bejancu, *CR-submanifolds of a Kaehler manifold I, II*, Proc.Amer. Math. Soc., **69** (1978), 134 –142 and Trans. Amer. Math. Soc., **250** (1979), 333–345.
- [2] A. Bejancu, *Geomerty of CR-submanifolds*, D. Reidel Publishing Company, (1986).
- [3] V. Bonanzinga and K. Matsumoto, *Warped product CR-submanifolds in locally conformal Kaehler manifolds*, Periodica Math. Hungarica, **48** (2-2) (2004), 207–221.
- [4] B. Y. Chen, *CR-submanifolds of a Kaehler manifold I and II*, J. of Differential Geometry, **16**, 305–322 and 493–509(1981).
- [5] B. Y. Chen, *Geometry of submanifolds*, Marcel Dekker, New York (1973).
- [6] B. Y. Chen, *Geometry of slant submanifolds*, Katholieke Univ. Leuven, (1990).
- [7] V. A. Khan and M. A. Khan, *Semi-slant submanifolds of a nearly Kaehler manifold*, Turk J. Math., **31**(2007), 341–353.
- [8] T. Kashiwada, *Some properties of locally conformal Kähler manifolds*, Hokkaido Math, J. **8** (1979), 191–198.
- [9] K. Matsumoto, *On CR-submanifolds of locally conformal Kähler manifolds I, II*, J. Korean Math. **21** (1984), 49–61 and Tensor N, S. **45** (1987), 144–150.
- [10] K. Matsumoto, *On semi-slant submanifolds in an locally conformal Kaehler space form*,
- [11] K. Matsumoto, *Warped product semi-slant submanifolds in locally conformal Kaehler manifolds*, to appear.
- [12] I. Vaisman, *Locally conformal almost Kähler manifolds*, Israel J, Math., **24**(1976), 338–351.