

**ON A HYPERSURFACE WITH THE RICCI TENSOR AND HARMONIC
CONFORMAL CURVATURE SATISFYING CERTAIN CONDITIONS**

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ABSTRACT. The purpose of the present paper is to prove that a hypersurface with the parallel Ricci tensor, the harmonic curvature, cyclic Ricci parallel tensor or harmonic conformal curvature is locally symmetric

REFERENCES

- [1] B.Y. Chen: *Geometry of Submanifold*, New York, Dekker, 1973.
- [2] S. Kobayashi and K. Nomizu: *Foundations of differential geometry, Vol. II, Interscience Tracts*, John Wiley and Sons, New York, 1963.
- [3] E. Omachi: *Hypersurfaces with harmonic curvature in a space of constant curvatur*e, Kodai Math. J., **20**(1968), 46-59.
- [4] T. Ono, S. Sekiguchi and Y. Matsuyama: *On a hypersurface with the the Ricci tensor satisfying certain conditions*, Int. J. Pure Appl. Math., **51**(2009), 293-301.
- [5] S. Oshio and Y. Matsuyama: *On hypersurfaces in a real space form with the Ricci tensor satisfying certain conditions*, in BSG Proceedings. The International Conference "Differential Geometry – Dynamical Systems", Balkan Society of Geometry, **22**(2014), 61-68.
- [6] K. Nomizu: *On hypersurfaces satisfying a certain condition on the curvature tensor*, Tohoku Math. J. (2), **20**(1968), 46-59.
- [7] P.J. Ryan: *Homogeneity and some curvature conditions for hypersurfaces*, Tohoku Math. J. (2), **21**(1969), 363-388.
- [8] P.J. Ryan: *Hypersurfaces with parallel Ricci tensor*, Osaka J. Math., **8**(1971), 251-259.
- [9] M. Umehara: *Hypersurfaces with harmonic curvatur*e, Tsukuba J. Math., **10**(1986), 79-88.

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