DOUGLAS SPACES FOR SOME (α, β)-METRIC OF A FINSLER SPACES

BRIJESH KUMAR TRIPATHI AND PRADEEP KUMAR

ABSTRACT. In the year 1998, M. Matsumoto [11] has studied the conditions for some Finsler spaces with (α, β)-metric to be of Douglas type. The purpose of the present paper is devoted to find the various conditions for a Finsler space F^n with a special (α, β)-metric to be a Douglas space for assumptions $\alpha^2 \not\cong 0 (\mathrm{mod}\beta)$, in the entire paper.

REFERENCES

[1] T. Aikou, M. Hashiguchi and K. Yamaguchi: *On Matsumotos Finsler space with time measure*, Rep. Fac. Sci. Kagoshima Univ., **23**(1990), 1-12.

[2] P.L. Antonelli: *Handbook of Finsler Geometry*, Kluwer Academic Publishers, Netherlands, 1993.

[3] P.L. Antonelli, R.S. Ingarden and M. Matsumoto: *The Theory of Sprays and Finsler Spaces with Applications in Physics and Biology*, Springer Dordrecht, 1993 (FTPH 58).

[4] S. Basco and M. Matsumoto: *On Finsler spaces of Douglas type. A generalisation of the notion of the Berwald space*, Publ. Math. Debrecen, **51**(1997), 358-406.

[5] Roberto Bonola: *Non-Euclidean Geometry*, Dover Publication, 1955.

[6] M. Hashiguchi, S. Hojo and M. Matsumoto: *Landsberg spaces of dimension two with (α, β)-metric*, Tensor (N.S.), **57**(1996), 145-153.

[7] M. Kitayama, M. Azuma and M. Matsumoto: *On Finsler spaces with (α, β)-metric. Regularity, geodesics and main scalars*, J. Hokkaido Univ. Edu., **46**(1995), No. 1, 1-10.

[8] Pradeep Kumar and Brijesh Kumar Tripathi: *Finsler spaces with some special (α, β)-metric of Douglas type*, Malaya J. Mat., **7**(2019), No. 2, 132-137.

[9] I.L. Lee and M.H. Lee: *On weakly-Berwald spaces of special (α, β)-metrics*, Bull. Korean Math. Soc., **43**(2006), 477-498.

[10] M. Matsumoto: *Theory of Finsler spaces with (α, β)-metric*, Rep. Math. Phys., **31**(1992), 43-83.

[11] M. Matsumoto: *Finsler spaces with (α, β)-metric of Douglas type*, Tensor (N.S.), **60**(1998), 123-134.

[12] M. Matsumoto: *The Berwald connection of a Finsler spaces with an (α, β)-metric*, Tensor (N.S.), **50**(1991), 18-21.

[13] H.S. Park and I.Y. Lee: *The Randers changes of Finsler space with (α, β)-metrics of Douglas type*, J. Korean Math. Soc., **38**(2001), No. 3, 503-521.

[14] S. Kikuchi: *On the condition that a space with (α, β)-metric be locally Minkowskian*, Tensor (N.S.), **33**(1979), 242-246.

L.D. College of Engineering, Ahmedabad
Faculty of Mathematics
Department of Science and Humanities
Navrangpura, Ahmedabad, Gujarat, 380015, India
E-mail address: `brijeshkumartripathi4@gmail.com`

Institute of Engineering and Rural Technology (IERT)
Faculty of Mathematics
Department of Applied Science and Humanities
Prayagraj, Uttar Pradesh, India
E-mail address: `pradeepshuklamath@gmail.com`