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PARA-KENMOTSU MANIFOLDS ADMITTING QUARTER-SYMMETRIC METRIC CONNECTION

S. K. Mishra, Giteshwari Pandey*, S. K. Pandey and R. N. Singh

Department of Mathematical Sciences,
A.P.S. University,
Rewa - 486003, Madhya Pradesh, INDIA

E-mail : maths.sandeepmishra@gmail.com, shravan.math@gmail.com, rnsinghmp@gmail.com

*Department of Mathematics and Computer Science,
Govt. Model Science College,
Rewa - 486001, Madhya Pradesh, INDIA

E-mail : math.giteshwari@gmail.com

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Abstract: In this article, we examine para - Kenmotsu manifolds equipped with a quarter-symmetric metric connection, focusing on various geometric and curvature properties and we construct an example of a 3-dimensional para-Kenmotsu manifold which confirms the specified metric and structure fulfill the para-Kenmotsu curvature conditions. A unique relation between the curvature tensors of Para-Kenmotsu manifolds with respect to the quarter-symmetric metric connection and the Levi-Civita connection has been established. We explore the characteristics of the locally ϕ-symmetric para-Kenmotsu manifold with respect to the quarter-symmetric metric connection and show that a para-Kenmotsu manifold admitting the quarter-symmetric metric connection $\tilde{\nabla}$ is locally ϕ-symmetric if and only if it is so with respect to the Levi-Civita connection. In addition, we studied ϕ-recurrent para-Kenmotsu manifolds with respect to the quarter-symmetric metric connection and proved that if a para-Kenmotsu manifold is ϕ-recurrent with respect to the quarter-symmetric metric connection, then the manifold is an η-Einstein manifold with respect to the Levi-Civita connection.