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Relative nullity foliations and lightlike hypersurfaces in indefinite Kenmotsu manifolds

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Abstract: This paper deals with the relative nullity distributions of lightlike hypersurfaces of indefinite Kenmotsu space forms, tangent to the structure vector field. Theorems on parallel vector fields are obtained. We give characterization theorems for the relative nullity distributions as well as for Einstein, totally contact umbilical and flat lightlike hypersurfaces. We show that, under a certain condition, Einstein lightlike hypersurfaces in indefinite Kenmotsu space forms have parallel screen distributions. We prove that on a parallel (or totally umbilical) lightlike hypersurface, the relative nullity space coincides with the tangent vector space.

Key Words: η-Einstein lightlike hypersurfaces; Indefinite Kenmotsu manifold; Relative nullity foliation; Screen distribution

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