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Killing and Geodesic Lightlike Hypersurfaces of Indefinite Sasakian Manifolds

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Abstract: In this paper, we study a lightlike hypersurface of indefinite Sasakian manifold, tangent to the structure vector field ξ . Theorems on parallel and Killing distributions are obtained. Necessary and sufficient conditions have been given for lightlike hypersurface to be mixed totally geodesic, D -totally geodesic, D^\perp -totally geodesic and D' -totally geodesic. We prove that, if the screen distribution of lightlike hypersurface M of indefinite Sasakian manifold is totally umbilical, the D^\perp -geodesibility of M is equivalent to the D^\perp -parallelism of the distribution $T M^\perp$ of rank 1 (Theorem \ref {Theoscre}). Finally, we give the D^\perp -version (Theorem 4.22) of the Theorem 2.2 ([11], page 88).

Key Words: Lightlike Hypersurfaces; Indefinite Sasakian; Screen Distribution

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