

The main objective of this thesis is to investigate the possibility of creating Robinson–Trautman spacetimes from Kundt class of geometries. In the first chapter, properties of the Robinson–Trautman and Kundt geometries in arbitrary dimension are summarised. Natural coordinates adapted to the null spacetime foliation generated by non-twisting shear-free affinely parametrized null geodesic congruence are introduced. In the following chapter, general conformal transformation and specific conformal relation between the Robinson–Trautman and Kundt classes of spacetimes is discussed. Finally, attempts to find solutions to the field equations by employing this conformal relation in Einstein’s theory of gravity as well as in 4-dimensional quadratic gravity are shown in the last chapter.