

Abstract: The thesis starts with a brief introduction to the algebraic classification of tensors and spacetimes in higher dimensions. Attempts to generalize the Goldberg-Sachs theorem are also discussed. There is a summary of main results for optical matrices of algebraically special spacetimes in higher dimensions. The optical matrix for a type III spacetime in six dimensions is found using Bianchi identities. A few properties of type III optical matrices in a general dimension are also found. Various properties of equations obtained from Bianchi identities for type III spacetimes are studied in appendices.