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Kerr-de Sitter-like Metrics: Structure and Characterization Results

In this talk, we examine the geometric properties of the Kerr-de Sitter family of metrics in arbitrary dimensions, proposed by Gibbons et al. as a higher-dimensional generalization of Carter's four-dimensional Kerr-de Sitter. We present a characterization of this family based on its asymptotic data, showing interesting features. This analysis allows for a natural extension of the Kerr-de Sitter family to a broader, explicit class of metrics, which we refer to as the Kerr-de Sitter-like class. We show that this class possesses a rich mathematical structure, connecting all its families via limits or analytic extensions of Kerr-de Sitter. Furthermore, we provide several characterization results for this class and highlight the unique properties that distinguish Kerr-de Sitter metrics.