

## **Geometric properties of the Kundt class**

A four dimensional Lorentzian geometry that admits a null congruence with certain kinematic features defines the Kundt class of metrics. These spacetimes play a key role when a characterization of geometries based on scalar polynomial curvature invariants is performed. I shall discuss the connection between the kinematic and the curvature properties of these spacetimes. I will then focus on a particular subclass of the Kundt metrics and show how the Riemann tensor and all of its derivatives become algebraically special and also give a partial algebraic classification for the first covariant derivative of the Riemann tensor.