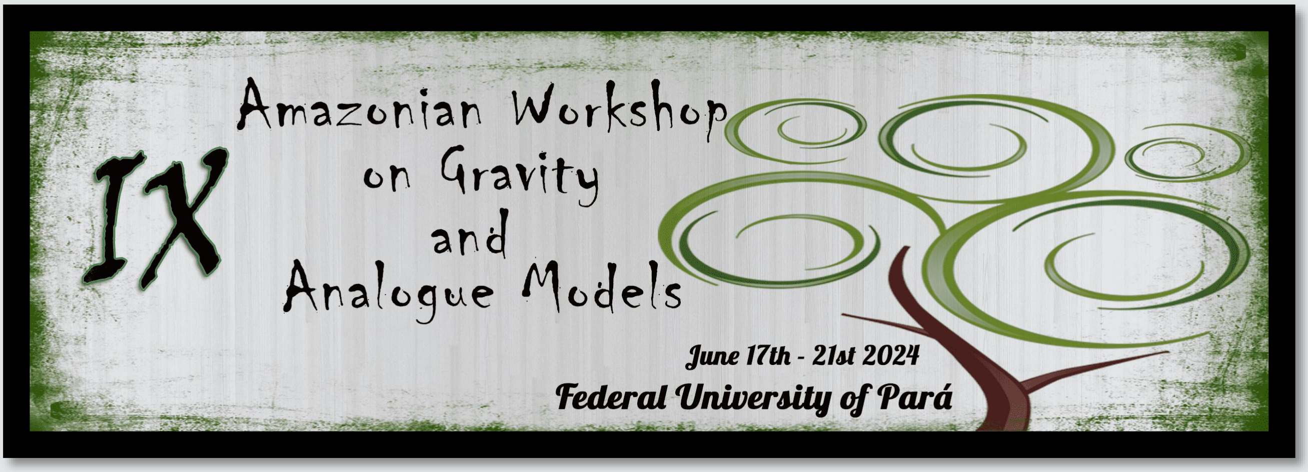


# SINGULAR SPACE-TIMES WITH BOUNDED ALGEBRAIC CURVATURE SCALARS

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We explore the limitations of using bounded algebraic curvature invariants—specifically those constructed from polynomials of the Riemann tensor—as indicators of space-time regularity. Our investigation focuses on asymmetric wormholes supported by scalar matter in two distinct metric-affine gravity theories. Despite these wormholes exhibiting finite algebraic curvature scalars everywhere, they harbor strong singularities within their internal regions, as revealed by the analysis of incomplete geodesics. We investigate the geodesic structure of these space-times and find that the angular components of tidal forces become unbounded along incomplete radial time-like geodesics. The behavior of Jacobi fields along these geodesics shows that strong singularities are present, with volume elements breaking apart as they approach the singularity. To support our findings, we also study the wormhole solution in the quadratic Palatini theory and analyze the tidal forces throughout the entire space-time. Our results show that one needs more than just algebraic curvature invariants to accurately determine the presence and nature of singularities in space-time.