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AdS Space-Times and Geometry of the BTZ Black Hole

This work explores Anti-de Sitter (AdS) space-times and their role in modeling black holes in 2+1 dimensions, focusing on the BTZ black hole as a key theoretical tool for studying gravity, holography, and quantum effects. AdS space-times, defined by a negative cosmological constant, are analyzed using global, Poincaré, and conformal coordinates, each revealing unique geometric and causal properties. The BTZ black hole, discovered in 1992 [1], exhibits event horizons and thermodynamic behavior similar to higher-dimensional black holes [2].

This study concludes by emphasizing the BTZ black hole's importance as a theoretical model in lower dimensions, with future work extending the analysis to charged versions to investigate how charge modifies geometry and geodesics.

Keywords: AdS space-time, BTZ black hole, AdS/CFT correspondence, geodesics, Penrose diagram.

References

[1] M. Bañados, C. Teitelboim, and J. Zanelli, "Black hole in three-dimensional spacetime," Phys. Rev. Lett. 69 (1992), 1849–1851. DOI: 10.1103/PhysRevLett.69.1849.

[2] S. Carlip, "The (2+1)-dimensional black hole," Class. Quantum Grav. 12 (1995), 2853–2879. DOI: 10.1088/0264-9381/12/12/005.

Breve historial académico

Me especializo en física teórica, con interés en gravitación, holografía y agujeros negros. Soy miembro del Grupo de Física Teórica (GFT) de la UNMSM, donde participo en investigaciones en estas áreas.

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