Contribution ID: **42**   Type: **Contributed Oral Presentation**

Higher spin swampland conjecture for massive AdS3 gravity

Thursday 18 September 2025 14:50 (12 minutes)

In this paper, we propose a version of the Swampland Weak Gravity Conjecture (WGC) for higher-spin (HS) massive topological AdS_3 gravity. We demonstrate that the conjecture can be formulated in terms of mass M_{hs}, charge Q_{hs} and coupling constant g_{hs} of 3D gravity coupled to higher spin fields as $M_{hs} \leq \sqrt{2} \, Q_{hs} \, g_{hs} \, M_{Pl}$.

To the best of our knowledge, this question has not been explored in the literature. While the WGC has been studied in a distinct setup—where the gravitational and gauge sectors remain decoupled by considering 3D gravity in addition to a U(1) gauge field—it has not yet been established for massive AdS_3 gravity in the Chern-Simons formulation coupled to higher-spin fields.

In this work, we aim to bridge this gap by formulating a super-extremality bound for the higher-spin BTZ black hole, extending the WGC framework to this context to regulate the discharge of unstable higher spin BTZ black holes.

Abstract Category

Astrophysics & Cosmology

Authors: SAMMANI, Rajae; Prof. SAIDI, El hassan (Hassan II Academy of Science and Technology, Kingdom of Morocco.)

Presenter: SAMMANI, Rajae

Session Classification: Contributed talks

Track Classification: Physics Research