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## De-singularizing the extremal GMGHS black hole via higher derivatives corrections

Thursday 25 August 2022 15:00 (20 minutes)

The Gibbons-Maeda-Garfinkle-Horowitz-Strominger (GMGHS) black hole is an influential solution of the low energy heterotic string theory. As it is well known, it presents a singular extremal limit. We construct a regular extension of the GMGHS extremal black hole in a model with  $\mathcal{O}(\alpha')$  corrections in the action, by solving the fully non-linear equations of motion. The de-singularization is supported by the  $\mathcal{O}(\alpha')$ -terms. The regularised extremal GMGHS BHs are asymptotically flat, possess a regular (non-zero size) horizon of spherical topology, with an  $AdS_2 \times S^2$  near horizon geometry, and their entropy is proportional to the electric charge. The near horizon solution is obtained analytically and some illustrative bulk solutions are constructed numerically.

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