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Non-perturbative decay of non-Abelian hair

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We construct a solution of Heterotic supergravity which interpolates between two different AdS3 × S3 × T4 geometries corresponding to the near-horizon limits of two 5-dimensional black holes, only one of which has non-Abelian hair. This solution can be used to estimate the amplitude of probability of the non-perturbative decay of the gauge 5-brane responsible for the non-Abelian hair into eight solitonic 5-branes by evaluating its Euclidean action. The Wick rotation of this solution poses several problems which we argue can be overcome by using a non-extremal off-shell (NEOS) deformation of the solution. This NEOS field configuration can be Wick rotated straight away and its Euclidean action can be computed for any value of the deformation parameter. The Euclidean result can then be anti-Wick-rotated and its extremal limit gives the Euclidean action of the original solution, which turns out to be one half of the difference between the entropies of the 5-dimensional black holes.

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