

”The gravitational path integral for N=4 BPS black holes from black hole microstate counting: part 1 (Gabriel Cardoso)

Thursday, 16 February 2023 09:30 (1h 30m)

The degeneracies of 1/4 BPS black holes in four-dimensional D=4 heterotic string theory are given in terms of the Fourier coefficients of the meromorphic Siegel modular form $1/\Phi_{10}$.

In the first part of this talk, we show how to obtain an exact expression for these degeneracies by using the symplectic symmetries of $1/\Phi_{10}$ to construct a fine-grained Rademacher type expansion

which expresses these BPS degeneracies as a regularized sum over residues of the poles of $1/\Phi_{10}$. The construction uses two distinct

$SL(2, \mathbb{Z})$ subgroups of $Sp(4, \mathbb{Z})$ which encode multiplier systems, Kloosterman sums and Eichler integrals appearing therein.