



Department of
Theoretical Physics

THE QUANTUM SPACETIME SEMINAR SERIES

Black hole operators in $N=4$ super-Yang-Mills

(Zoom Seminar)

Chi-Ming Chang

(Tsinghua U., Beijing)

Date: August 21, 2023

Time: 1:30 PM IST

Zoom link shall be shared separately



I will discuss the construction and enumeration of BPS and near-BPS operators in $N=4$ super-Yang-Mills theories, which are dual to gravitons, black hole microstates, and near-horizon excitations of the near-BPS black holes in AdS5. More precisely, I will present

1. A classification of the operators that correspond to (multi-)gravitons.
2. The first BPS operator in the $SU(2)$ SYM, which is NOT a graviton operator and potentially corresponds to the smallest quantum black hole.
3. The one-loop anomalous dimensions of millions of near-BPS operators in the $SU(2)$ SYM, which exhibit qualitatively the same feature as the near-horizon excitations of the near-BPS black holes.