

## **Natalie Paquette**

Symmetries, universal effects, and holography

### Abstract

In this talk, we discuss and characterize certain line and surface defects in supersymmetric quantum field theory and string theory. In particular, we study the constraints arising from gauge or BRST invariance on admissible defects. This point of view has a mathematical translation in terms of a subject called Koszul duality, and its generalizations, which we will explain. We also discuss applications of our Koszul duality point of view for holography: both celestial holography and AdS/CFT. We will show that this point of view provides an expedient way to derive universal symmetry algebras in (holographic) systems. This is based on various works in collaboration with Kevin Costello, and with Brian Williams.