Bruno Le Floch

LPT-École Normale Supérieure Paris

AGT correspondence for surface operators

With Jaume Gomis, we consider M2 branes ending on a stack of M5 branes. Compactified on a Riemann surface C, the stack of M5 branes yields a $4d$ $\mathcal{N} = 2$ gauge theory, and M2 branes insert a half-BPS surface operator. The AGT correspondence equates the sphere partition function of the $4d$ theory to a CFT correlator on C, and the surface operator translates to an extra local insertion on C. From the correspondence we deduce a $2d$ $\mathcal{N} = (2,2)$ gauge theory description of the surface operator, hence of the M2–M5 intersection. We also find $2d$ $\mathcal{N} = (2,2)$ analogues of Seiberg duality.