Institut Henri Poincaré

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String Theory in Greater Paris

Rencontres Théoriciennes

“Supergravité, théorie des cordes et théorie M”

Jeudi 8 Fevrier 2024, 11:45

Edward Mazenc

ETH Zurich

Deriving the Simplest Gauge/String Duality

I will give an overview of my work with Rajesh Gopakumar on deriving the closed string dual to the simplest possible gauge theory, a Hermitian matrix integral. These matrix theories are studied in the conventional 't Hooft limit, i.e. they do not require any further double-scaling. I'll present and verify an explicit operator dictionary between matrix traces and vertex operators in the dual closed A- and B-model topological string worldsheet descriptions. I will discuss the more general idea of open-closed-open triality which allows us to establish this dictionary. Roughly, it shows there are two ways in which closed strings can be reconstructed from gauge-theory Feynman diagrams. We will then sketch how the tools of Strebel differentials and topological recursion reveal the underlying mechanics of this open/closed string correspondence. I'll close by embedding our results in the broader context of AdS/CFT.

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