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A matrix model for 2d de Sitter

Monday, 3 June 2024 13:00 (30 minutes)

I will introduce a new 2d gravity/matrix model duality. The bulk theory is a two-dimensional string theory defined by coupling two copies of Liouville CFT with central charges c = 13 \pm i \mathbb{R} on the worldsheet. The worldsheet theory may be recast semiclassically in terms of 2d dilaton gravity with a sine potential for the dilaton. Intriguingly, this dilaton gravity theory admits solutions with both signs of the cosmological constant. I will argue that this theory admits a dual description in terms of a double-scaled two-matrix integral. The duality holds for any value of the imaginary part of the central charge, and the perturbative string amplitudes may be computed exactly from topological recursion. Based on work in progress in collaboration with Lorenz Eberhardt, Beatrix Mühlmann and Victor Rodriguez.

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