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Towards an "AdS_1/CFT_0" correspondence from the D-1/D7 system

We argue that an Euclidean supergravity vacuum solution of the form $\mathbb{R} \times S^1 \times \mathbb{T}^8$ with imaginary self-dual F_1 -flux through $\mathbb{R} \times S^1$ is the natural end to the chain of $\operatorname{AdS}_d \times S^d \times \mathbb{T}^{10-2d}$ -vacua with imaginary self dual F_d flux, where $d \leq 5$. Such vacua come from the near-horizon of $\operatorname{D}(d-2)/\operatorname{D}(8-d)$ branes and are supersymmetric for odd values of d. For d = 1 we suggest that the hallmark of conformal symmetry for the matrix model dual is a vanishing partition function. The matrix dual was recently constructed by [Billo et al., 2021] by adding matrix interactions coming from strings stretching between the D-1 and D7 branes to the IKKT matrix model. We find that the corresponding supergravity solution indeed has vanishing on-shell action. Specific F_5 fluxes need to be switched on as a consequence of a T-dual version of the Hanany-Witten effect.

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