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Kähler moduli stabilization from ten dimensions

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We describe the back-reaction of gaugino condensates in supersymmetric AdS4 Type II String Theory compactifications with fluxes by using generalized complex geometry. We describe the modification of the ten-dimensional supersymmetry equations and show that the cosmological constant prevents the cycle wrapped by the branes with gaugino condensation from shrinking to zero size. Thus, unlike in ordinary geometric transitions in flat space, the volume of this cycle remains finite. For D7 branes with gaugino condensation, this gives a ten-dimensional account of Kähler moduli stabilization. Furthermore, by matching the ten-dimensional supergravity solutions near and far from the cycle wrapped by the D7 branes, we find a relation between the size of this cycle and the cosmological constant. This relation is almost exactly the one found by KKLT using 4d EFT.

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