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AdS2 vacua from SL(2,R) T-Duality

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The AdS_2/CFT_1 correspondence plays a key role in the microscopical description of extremal black holes, AdS_2 being part of the geometry that appears in their near horizon limit in any dimension.
Another useful application of the AdS_2/CFT_1 correspondence is to the holographic description of superconformal line defects in higher dimensional CFTs. Geometrically, a sign that an AdS_2 solution may be describing a superconformal line defect is that it flows asymptotically locally to a higher dimensional AdS background, dual far from the defects to the higher dimensional CFT in which they are embedded.
I will present general results on the construction of AdS_2 solutions to Type II supergravity via U(1) and SL(2) T-dualities, paying special attention to the conditions for preservation of supersymmetry. I then exploit these to construct new classes of small $calN = 4$ solutions in Type II supergravity.
I also applied this procedure to two solutions in Type IIA Supergravity with $\mathbb{CP}^3$ along the internal space. These preserve $calN = (5,0)$ or $calN = (6,0)$ supersymmetry and realise the superconformal algebras $osp(5|2)$ and $osp(6|2)$. This results in four new classes of AdS_2 solutions, realising these superconformal algebras, hinting that a more general class $AdS_2 \times \mathbb{CP}^3 \times \Sigma$ may exist.

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