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AdS₂ vacua from SL(2,R) T-duality

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The AdS₂/CFT₁ correspondence plays a key role in the microscopical description of extremal black holes, AdS₂ being part of the geometry that appears in their near horizon limit in any dimension.

Another useful application of the AdS₁/CFT₂ correspondence is to the holographic description of superconformal line defects in higher dimensional CFTs. Geometrically, a sign that an AdS₂ 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 AdS₂ 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 N=4 solutions in Type II supergravity.

I also applied this procedure to two solutions in Type IIA Supergravity with CP³ along the internal space. These preserve N=(5,0) or N=(6,0) supersymmetry and realise the superconformal algebras osp(5|2) and osp(6|2). This results in four new classes of AdS₂ solutions, realising these superconformal algebras, hinting that a more general class AdS₂×CP³×Σ may exist.

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