Tracking the Degrees of Freedom in the AdS/CFT Correspondence with Cartan Geometry JEFFREY HAZBOUN, Utah State University — The explicit correspondence of the degrees of freedom in an $(n+1)$-dimensional anti-de Sitter space with those of an n-dimensional conformal gravitational theory are shown. While the degrees of freedom on both sides of the correspondence originate from gravitational ones, the equations for various biconformal curvatures have the form of the Yang-Mills field strength. Using the quotient method first pioneered by Ne'eman and Regge allows us to construct both sides of the correspondence as different quotients of the same group, $SO(n, 2)$. As a result, there is a direct correspondence in the degrees of freedom of the two connections. The flat case in AdS space is then shown to correspond to a biconformal space that is flat with respect to the Cartan curvature, however possessing a number of torsion terms that are interpreted as the field strengths of a unitary group. The latter structure is strongly dependent on the fact that biconformal space has $2n$-dimensions. This allows us to interpret n of the dimensions as non-gravitational fields. In the more general curved case, the simplest action linear in the curvature is constructed for both spaces. Connections to a number of simple examples of the AdS/CFT correspondence are then shown.

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