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Conformal geometries and Einstein metrics

In 1986 Fefferman and Graham proposed a new approach to conformal geometry, by considering a correspondence between conformal geometry in dimension $n+1$ and Einstein metrics in dimension n. In 1997 physicists (Maldacena, Witten) discovered that this is a part of a physical correspondence called AdS/CFT correspondence. From this new viewpoint emerged several important progress in conformal geometry or its variants like CR geometry (the geometry of the boundaries of complex domains).

I will explain the general philosophy of the AdS/CFT correspondence and discuss recent constructions and results.