UNIQUE CONTINUATION FOR NONLINEAR WAVES IN ASYMPTOTICALLY ANTI-DE SITTER SPACETIMES

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ABSTRACT. The AdS/CFT conjecture in physics posits the existence of a correspondence between gravitational theories in asymptotically Anti-de Sitter (AdS) spacetimes and conformal field theories (CFT) on their conformal boundary. In this talk, we prove a rigorous mathematical statement toward this conjecture formulated as a unique continuation property for scalar or tensorial Klein-Gordon equations. In particular, we show there is a one-to-one correspondence between asymptotically Anti-de Sitter spacetimes and a suitable space of data on the conformal boundary, provided the boundary satisfies a geometric condition. Finally, we also discuss various geometric consequences of this condition to the geometry of the underlying boundary. This is joint work Arick Shao (Queen Mary University).

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