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Conformally covariant operators and scattering theory

Using scattering theory on Poincaré–Einstein manifolds, Graham and Zworski defined a family of conformally covariant pseudodifferential operators on the boundary with principal symbol that of fractional powers of the Laplacian. I will present an equivalent characterization of these operators as Dirichlet-to-Neumann operators. As applications, I will discuss a new sharp Sobolev trace inequality for traces of functions in $W^{2,2}$ and a positivity result for the Green's function of the conformally covariant operator $(-\Delta)^{3/2} + \text{l.o.t.}$