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*Hyperbolic Riesz potentials-capacities*

We explore various energy estimates and optimal strong-weak embeddings for the hyperbolic Riesz potential, which is equivalent to the fractional wave operator  $\square^\alpha$ . Additionally, we examine the hyperbolic Riesz capacity associated with this potential, focusing on its fundamental properties, its relationship to Lebesgue and Hausdorff measures, and its dual capacity.