

Uniqueness of h-harmonic Moebius invariant inner products on the ball

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We prove uniqueness of the Moebius invariant semi-inner product on hyperbolic-harmonic functions on the unit ball of the real n-space, i.e. on functions annihilated by the hyperbolic Laplacian on the ball.

This will enable us to prove the following hypergeometric identity:

$$\sum_{m=0}^{\infty} \frac{(n-2)_m^2}{\left(\frac{n}{2}-1\right)_m \left(\frac{n}{2}\right)_m} x^m {}_2F_1 \left(\begin{matrix} \frac{n}{2}-1 & m+n-2 \\ m+\frac{n}{2} \end{matrix} ; x \right)^2 = \frac{1}{(1-x)^{2n-4}},$$

valid for all $n \in \mathbb{N}$.

The talk is based on joint work with Miroslav Engliš.