

A Mean Value Property of Harmonic Functions on the Interior of a Hyperbola

MON/EPCOS 16:30–16:50

Eleutherius Symeonidis (Kath. Univ. Eichstätt-Ingolstadt)

Let Y_s denote the interior of the hyperbola $\frac{x^2}{\cos^2 s} - \frac{y^2}{\sin^2 s} = 1$, $x > 0$, for $s \in]0, \frac{\pi}{2}[$. If h is a bounded harmonic function on an open neighbourhood of the topological closure of Y_s , which decays sufficiently fast at infinity, then for every real number $c > 0$ it holds:

$$\int_0^\infty h(\cosh r, 0) e^{\frac{s^2-r^2}{4c}} \cos \frac{sr}{2c} dr = \frac{1}{2} \int_{-\infty}^\infty h(\cosh r \cos s, \sinh r \sin s) e^{-\frac{r^2}{4c}} dr.$$