

Rubenthaler, Hubert

La surjectivité de l'application moyenne pour les espaces préhomogènes. (English)

Zbl 0557.43007

J. Funct. Anal. 60, 80-94 (1985).

Let f be a homogeneous polynomial on \mathbb{R}^n . For C a connected component of $\{f(x) \neq 0\}$ and s a complex number one considers the integral $Z(\phi, s) = \int_C \phi(x) |f(x)|^s dx$, where ϕ is a test function. This integral converges for $\operatorname{Re} s > 0$ and admits a meromorphic continuation. The author studies the distributions occurring as coefficients in the Laurent developments of the function $s \mapsto Z(\phi, s)$ at its poles. He proves a generalization of a theorem of Borel, which corresponds to the special case $f(x) = x$, $n = 1$, and says: for any sequence c_k of complex numbers there exists a C^∞ function ϕ on \mathbb{R} such that $\phi^{(k)}(0) = c_k$. Let $M_\phi(t)$ be the integral of ϕ on $\{f(x) = t\} \cap C$. As a corollary of the previous result, since $Z(\phi, s)$ is the Mellin transform of $M_\phi(t)$, the space of the functions M_ϕ can be described in terms of asymptotic developments at 0.

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MSC:

43A85 Harmonic analysis on homogeneous spaces

46F10 Operations with distributions and generalized functions

Cited in 4 Documents

Keywords:

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