The principle of general localization on unit sphere.

ABSTRACT

In this paper we study the general localization principle for Fourier–Laplace series on unit sphere $S^N \subset R^{N+1}$. Weak type (1,1) property of maximal functions is used to establish the estimates of the maximal operators of Riesz means at critical index. The properties Jacobi polynomials are used in estimating the maximal operators of spectral expansions in $L_2(S^N)$. For extending positive results on critical line, $1 \leqslant p \leqslant 2$, we apply interpolation theorem for the family of the linear operators of weak types. The generalized localization principle is established by the analysis of spectral expansions in L_2. We have proved the sufficient conditions for the almost everywhere convergence of Fourier–Laplace series by Riesz means on the critical line.