

The almost everywhere convergence of the eigenfunction expansions from Liouville classes corresponding to the elliptic operators

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ABSTRACT

Many problems of mathematical physics can be solved by separation methods of partial differential equations. By application of separation method, a solution of the partial differential equation can be represented in terms of eigenfunction expansions of elliptic differential operator. To obtain the solution from its eigenfunction expansion one has to investigate the conditions for convergence of such expansions. In this paper, the problems of almost everywhere convergence of the eigenfunction expansions of the functions from Liouville classes are investigated. The Lebesgue constant corresponding to the elliptic polynomials are estimated. The Jackson Theorem is applied to prove the convergence of multiple Fourier series in the classes of Liouville.

KEYWORDS:

Eigenfunction expansions; Liouville classes; Elliptic operators