Bloom, Thomas
On the convergence of multivariable Lagrange interpolants. (English) Zbl 0683.32011

The author considers a triangular array of nodes in the compact set $X \subseteq \mathbb{C}^n$ and, for the analytic function $f$ in a neighborhood of $X$, the corresponding Lagrange interpolant $L_d(f)$ of degree $d$ at the given nodes. The main object of the paper is to obtain conditions of uniformly convergence of the sequence $\{L_d\}_{d \geq 1}$ to $f$ on $X$. For example, if $X$ is locally regular the author constructs a function $\phi$ satisfying the Monge-Ampère equation on $\mathbb{C}^n \setminus X$ such that if $f$ is analytic on $\{\phi \leq R\}, R > 1$, then

$$
\|L_d(f) - f\|_X \leq B \exp(-d \cdot \log R),
$$

with convenable $B$. Numerous examples and relations between results are also presented.

Reviewer: I.Şerb

MSC:
32E30 Holomorphic, polynomial and rational approximation, and interpolation in several complex variables; Runge pairs
41A05 Interpolation in approximation theory
41A25 Rate of convergence, degree of approximation

Keywords:
multivariable Lagrange interpolation; extremal plurisubharmonic function; complex Monge-Ampère equation

Full Text: DOI

References:

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