Olenko, Andrew Ya.; Pogány, Tibor K.

Time shifted aliasing error upper bounds for truncated sampling cardinal series. (English)

Summary: Time shifted aliasing error upper bound extremals for the sampling reconstruction procedure are fully characterized. Sharp upper bounds are found on the aliasing error of truncated cardinal series and the corresponding extremals are described for entire functions from certain specific $L^p$, $p > 1$, classes. Analogous results are obtained in multidimensional regular sampling. Truncation error analysis is provided in all cases considered. Moreover, sharpness of bounding inequalities, convergence rates and various sufficient conditions are discussed.

MSC:
94A20 Sampling theory in information and communication theory
41A30 Approximation by other special function classes
41A25 Rate of convergence, degree of approximation

Keywords:
aliasing; approximation/interpolation error level; asymptotic behaviour; Dirichlet lambda function; extremal function; Fourier transform; incomplete lambda function; multidimensional sampling; Plancherel–Pólya inequality; regular sampling theorem; entire functions; sharp bound; truncation error; upper bound; Whittaker-Kotel’nikov-Shannon sampling formula

Full Text: DOI

References:


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