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An extension of Kramer's sampling theorem for not necessarily "bandlimited" signals – the aliasing error. (English) [Zbl 0835.94004](#)

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Summary: Kramer's sampling theorem, a generalization of Shannon's sampling theorem, states that a function f which is representable as a finite integral transform can be reconstructed from sample values $f(t_k)$ in terms of a series expansion with respect to a complete orthogonal set. The aim of this paper is to investigate the error occurring when this expansion is used for a function f which is representable as an infinite rather than as a finite integral transform. In particular, it is shown that in many applications this error tends to zero when the distance between the sampling points t_k tends to zero.

MSC:

- [94A12](#) Signal theory (characterization, reconstruction, filtering, etc.)
- [41A25](#) Rate of convergence, degree of approximation
- [41A58](#) Series expansions (e.g., Taylor, Lidstone series, but not Fourier series)
- [34B24](#) Sturm-Liouville theory

Cited in **4** Documents

Keywords:

Kramer's sampling theorem; infinite integral transform; generalized Shannon sampling theorem; expansion