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generalized Fourier transform

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Defines	positive definite- measurable function

Definition 0.1. Fourier-Stieltjes transform:

Given a *positive definite, measurable function* $f(x)$ on the interval $(-\infty, \infty)$ there exists a monotone increasing, real-valued bounded function $\alpha(t)$ such that:

$$f(x) = \int_{\mathbb{R}} e^{itx} d(\alpha(t)), \quad (0.1)$$

for all $x \in \mathbb{R}$ except a ‘small’ set, that is a finite set which contains only a small number of values. When $f(x)$ is defined as above and if $\alpha(t)$ is nondecreasing and bounded then the measurable function defined by the above integral is called *the Fourier-Stieltjes transform of $\alpha(t)$* , and it is *continuous* in addition to being *positive definite*.

References

- [1] A. Ramsay and M. E. Walter, Fourier-Stieltjes algebras of locally compact groupoids, *J. Functional Anal.* **148**: 314-367 (1997).
- [2] A. L. T. Paterson, The Fourier algebra for locally compact groupoids., Preprint, (2001).
- [3] A. L. T. Paterson, The Fourier-Stieltjes and Fourier algebras for locally compact groupoids, (2003).