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Fourier transform on $L^2(-A, A) \leq L^2(\mathbb{R})$

Let $f \in L^1(-A, A)$ then

$$\hat{f}(z) := \int_{t \in (-A, A)} f(t) \exp(itz)$$

is an entire function of growth less than exponential

$$\begin{aligned} \left| \hat{f}(z) \right| &\leq \int_{t \in (-A, A)} |f(t)| \exp(-t\Im(z)) \\ &\leq e^{A|\Im(z)|} \int_{(-A, A)} |f| \end{aligned}$$

$$L^2(-A, A)$$

(Paley-Wiener)

$$\wedge \colon L^2(-A, A) \cong L^2(\mathbb{R}) \cap \{F \in \mathcal{O}(\mathbb{C}) \mid |F(\bullet)| \lesssim \exp(A \mid \bullet |) \text{ on } \mathbb{C}\}$$

$$\mathcal{S}^*_c$$

Current note has 0 direct children and 0 total descendants.

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 - [subobjects of and functions on \$\mathbb{R}^n, S^n, \mathbb{C}^n\$ and its quotients \$\Gamma \backslash \mathbb{R}^n, \Gamma \backslash \mathbb{C}^n\$](#)
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And it has 10 siblings.

- [stem](#)
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