

Proprietá principali della Trasformata di Fourier

Funzione	Trasformata di Fourier
$af(x) + bg(x)$	$a\hat{f}(\nu) + b\hat{g}(\nu)$
$f(-x)$	$\hat{f}(-\nu)$
$f^*(x)$	$\hat{f}^*(-\nu)$
$f(x \pm \theta)$	$\hat{f}(\nu)e^{\pm i2\pi\nu\theta}$
$f(kx)$	$\frac{1}{ k }\hat{f}\left(\frac{\nu}{k}\right)$
$\frac{1}{ k }f\left(\frac{x}{k}\right)$	$\hat{f}(k\nu)$
$f(x)$ Reale	$\Re\hat{f}(\nu)$ Pari
$f(x)$ Reale	$\Im\hat{f}(\nu)$ Dispari
$f(x)$ Reale	$ f(\nu) $ Pari
$f(x)$ Reale	$\arg\hat{f}(\nu)$ Dispari
$f(x)$ Reale e Pari	$\hat{f}(\nu)$ Reale Pari
$f(x)e^{\mp i2\pi x\theta}$	$\hat{f}(\nu \pm \theta)$
$f(x)\cos(2\pi\theta x)$	$\frac{1}{2}[\hat{f}(\nu - \theta) + \hat{f}(\nu + \theta)]$
$f(x) * g(x)$	$\hat{f}(\nu)\hat{g}(\nu)$
$f'(x)$	$2\pi i\nu\hat{f}(\nu)$
$xf(x)$	$\frac{i}{2\pi}\frac{d}{d\nu}\hat{f}(\nu)$
$f^{(n)}(x)$	$(2\pi i\nu)^n\hat{f}(\nu)$
$x^n f(x)$	$\left(\frac{i}{2\pi}\right)^n \frac{d^n}{d\nu^n}\hat{f}(\nu)$

Trasformate di Fourier fondamentali

$f(x)$	$\hat{f}(\nu)$
$e^{-ax}H(x)$ $(a > 0)$	$\frac{1}{a + i2\pi\nu}$
$axe^{-ax}H(x)$ $(a > 0)$	$\frac{a}{(a + i2\pi\nu)^2}$
$e^{-a x }$ $(a > 0)$	$\frac{2a}{a^2 + 4\pi^2\nu^2}$
$\delta(x)$	1
$H(x)e^{-ax}\sin(2\pi\nu_0x)$ $(a > 0)$	$\frac{2\pi\nu_0}{(a + i2\pi\nu)^2 + 4\pi^2\nu_0^2}$
$H(x + \frac{a}{2}) - H(x - \frac{a}{2})$	$\frac{\sin(\pi\nu a)}{\pi\nu}$
$\frac{\sin(\pi x/a)}{\pi x}$	$H(\nu + \frac{1}{2a}) - H(\nu - \frac{1}{2a})$
$(1 - \frac{ x }{a})[H(x + a) - H(x - a)]$	$a \frac{\sin^2(\pi\nu a)}{(\pi\nu a)^2}$
$\frac{1}{a} \frac{\sin^2(\pi x/a)}{(\pi x/a)^2}$	$(1 - \nu a)[H(\nu + \frac{1}{a}) - H(\nu - \frac{1}{a})]$
$\frac{1}{a\sqrt{2\pi}} e^{-\frac{x^2}{2a^2}}$	$e^{-2(\pi\nu a)^2}$
$\cos(2\pi\nu_0x)[H(x + \frac{a}{2}) - H(x - \frac{a}{2})]$	$\frac{1}{2} \left\{ \frac{\sin[(\pi(\nu - \nu_0)a]}{\pi(\nu - \nu_0)} + \frac{\sin[\pi(\nu + \nu_0)a]}{\pi(\nu + \nu_0)} \right\}$