

Fourier-Analyse / Spektrum

$x(t)$ periodisch

Grundperiode T_0

Grundfrequenz $f_0 := \frac{1}{T_0}$

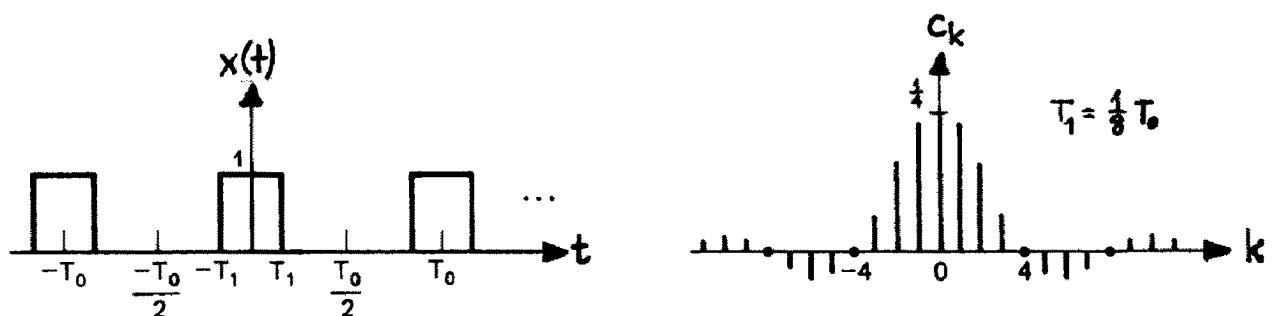
$$x(t) = \hat{x}_0 + \sum_{k=1}^{\infty} \hat{A}_k \hat{x}_k \cdot \sin(2\pi \cdot k \cdot f_0 \cdot t + j_k)$$

Grundkreisfrequenz $\omega_0 := 2\pi \cdot f_0$

$$x(t) = \hat{x}_0 + \sum_{k=1}^{\infty} \hat{A}_k \hat{x}_k \cdot \sin(k\omega_0 t + j_k)$$

$$x(t) = \sum_{k=-\infty}^{\infty} \hat{A}_k c_k \cdot e^{jk\omega_0 t}$$

Fourier-Reihe



Fourier-Analyse / Spektrum

$x(t)$ aperiodisch

$$x(t) = \frac{1}{2\pi} \int_{-\infty}^{\infty} X(\omega) \cdot e^{j\omega t} d\omega$$

Fourier-Integral

