Dagens teman

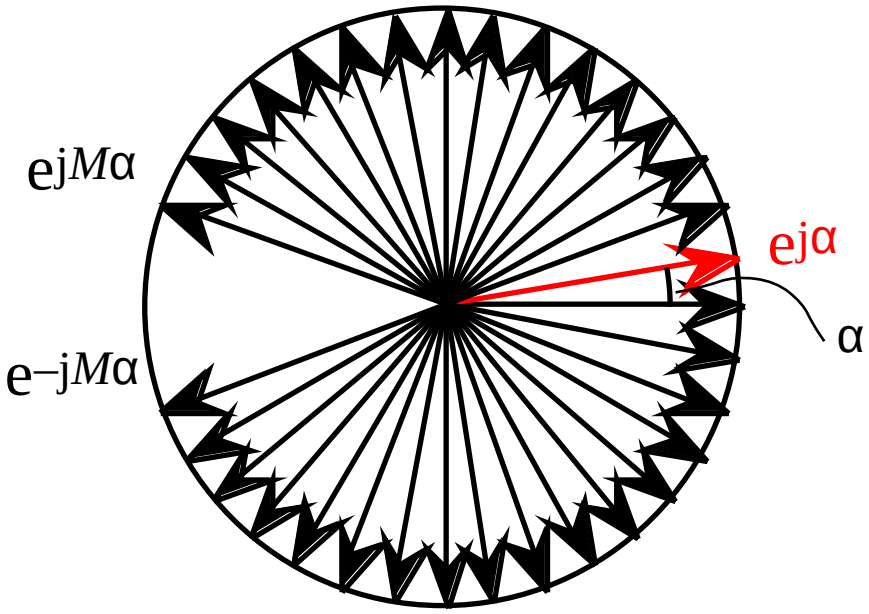
- Summor av harmoniska funktioner (Arb 4, §5)
- Fourierserier (Arb 4, §6)

Viktiga samband

- $x(t) \cdot \delta(t - a) = x(a) \cdot \delta(t - a)$.
- $\int_{-\infty}^{\infty} x(t - \tau)\, \delta(\tau - a)\, d\tau = x(t - a)$,

dvs.

$$x(t) * \delta(t - a) = x(t - a).$$



$\alpha = \pi/18 = 10°$

$M = 16, P = 33$

Viktiga summationer

- $\sum_{n=-M}^{M} \mathrm{e}^{\mathrm{j}n\omega t} = \frac{\sin P\omega t/2}{\sin \omega t/2}$, $P = 2M + 1$

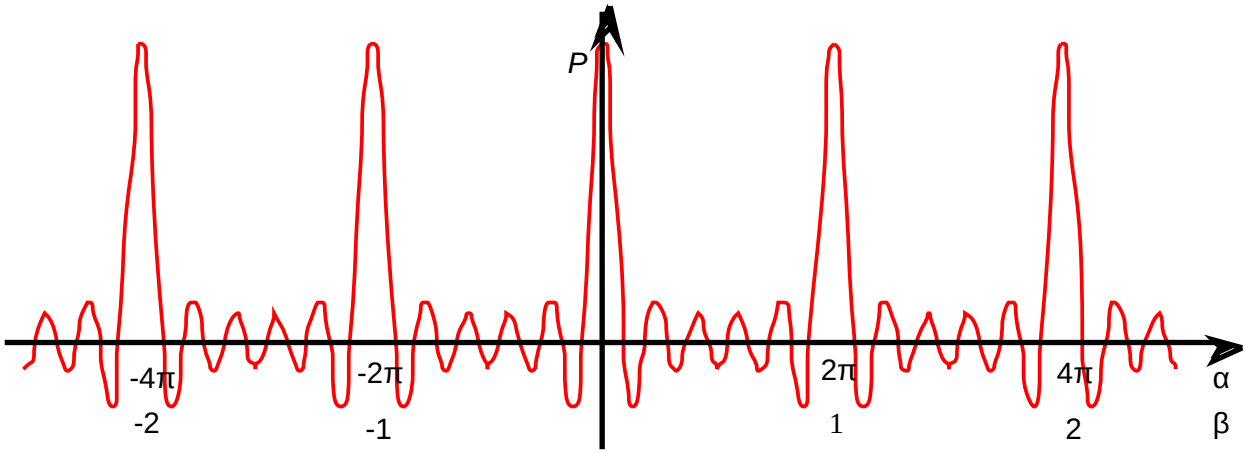
  = antalet termer

Summa av alla harmoniska signaler med heltalsfrekvenser:

- $\sum_{n=-\infty}^{\infty} \mathrm{e}^{2\pi \mathrm{j}nt} = \sum_{n=-\infty}^{\infty} \delta(t - n)$

Generellare: Summa av alla T-periodiska harmoniska signaler

- $\sum_{n=-\infty}^{\infty} \mathrm{e}^{2\pi \mathrm{j}nt/T} = T \sum_{n=-\infty}^{\infty} \delta(t - nT)$



$$\sum_{n=-M}^{M} e^{2\pi j n\beta} = \frac{\sin P\pi\beta}{\sin \pi\beta}, P = 2M + 1$$

$$\alpha = 2\pi\beta$$

Radianer Varv