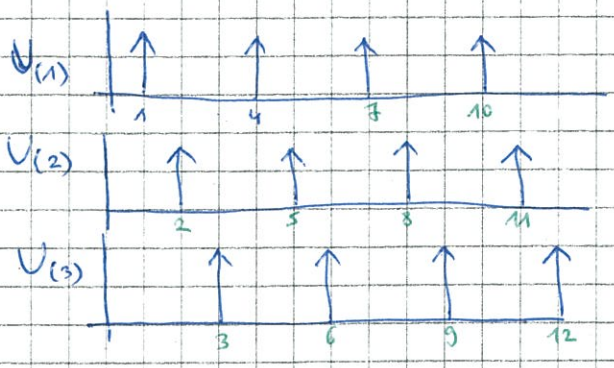
ONE EXPERIMENT!

1 EXCITED FREQUENCY ⟶ ONLY IN ONE INPUT

↓

MULTISINE

$$u(t) = \sum_{k} A_k \cos(\omega_k t + \varphi_k)$$



$n_u (0 \dots F-1) + 1$ 1, 4, 7, ...

$+ 2$

$+ 3$

$$\omega_k = f_0 \times [n_u (0 \dots F-1) + p]$$

ξ

$1 \dots n_u$

OUTPUT: EVERY FREQUENCY IS PRESENT! (FEED-FORWARD CROSS PATHS)

$$[\underline{\underline{G}}]_{q,p} = G_{(q,p)}(j\omega_{n_u(\xi-1)+p}) = \frac{Y_{(q)}(n_u(\xi-1)+p)}{U_{(p)}(n_u(\xi-1)+p)}$$

OUT IN

$f_0 \times [n_u(\xi-1)+p]$

$\xi = 1 \dots F$

AT THE SAME FREQUENCY

PROBLEMS:
- MORE MULTISINE GENERATORS (SIMULTAN.)
- CLOSE-LOOP MEASUREMENT IMPOSSIBLE
- RESOLUTION ? (n_u HIGH)
- NL DISTORTIONS (TRANSFORMED FREQUENCIES)

$$\cos^2(\theta) = \frac{1}{2} + \frac{1}{2}\cos(2\theta)$$

$$\cos^3(\theta) = \frac{3}{4}\cos(\theta) + \frac{1}{4}\cos(3\theta)$$

...