$$\partial_z F(t,z) = -i \frac{\beta_2}{2} \partial_t^2 F + i\gamma F^* S\, e^{ikz}$$

add to the code

→ certain opt° normalises field so $\gamma = 1$ to avoid F & S having weird units

frequency transform

Funct°

$$\partial_z f(\delta, z) = i\underbrace{\beta(\delta)} f + i\gamma\, FFT(F^* S)\, e^{i\Delta k z}$$

$$\beta_2 \delta^2 + \beta_1 \delta = \beta(\delta)$$

RHS f° to program

$$\vec{x} = \begin{bmatrix} F \\ S \\ P \end{bmatrix}$$

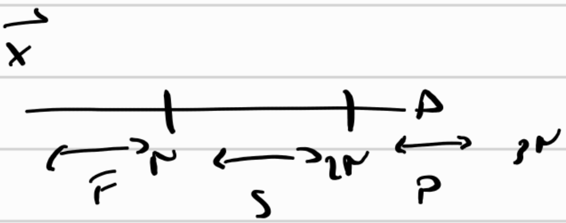
rhs (z, x)

f = x(1:N)

s = x(N+1 : 2N)

⋮

$\vec{x}$



F = ifft(f)

S = ifft(s)

FFT(conj(F) S)

f = FFT(F) or f = IFFT(F)

F = IFFT(f) or F = FFT(f)

this choice defines sign frequency defining γ

check $t + \beta_1 z$ over our figure

$$\frac{T^2}{\beta_2}$$

$\boxed{1/t_s t!}$

$$\frac{\partial}{\partial \tau} F = \beta_1 \partial_T F$$

could be anything

ex

$F(x) = \mathrm{sech}(x)$

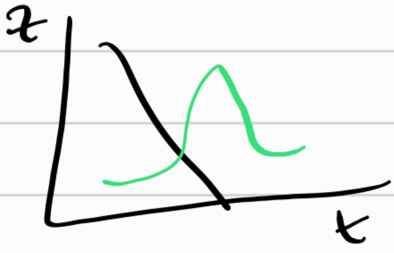
$F(t + \beta, z)$

$\partial_z F = F' \cdot \beta_1$

$\partial_t F = F' \cdot 1$

$F' \beta_1 = \beta_1 F'$

should be true for any F



$t = 0$

moving frame : retarded time

intensity of light (positi°, time)

measuring time from the time the peak of my pulse arrives at my waveguide

no β_1 in one of the P field & moving frame

$\Downarrow$

WE ARE TRAVELLING WITH THE VELOCITY OF the P pump

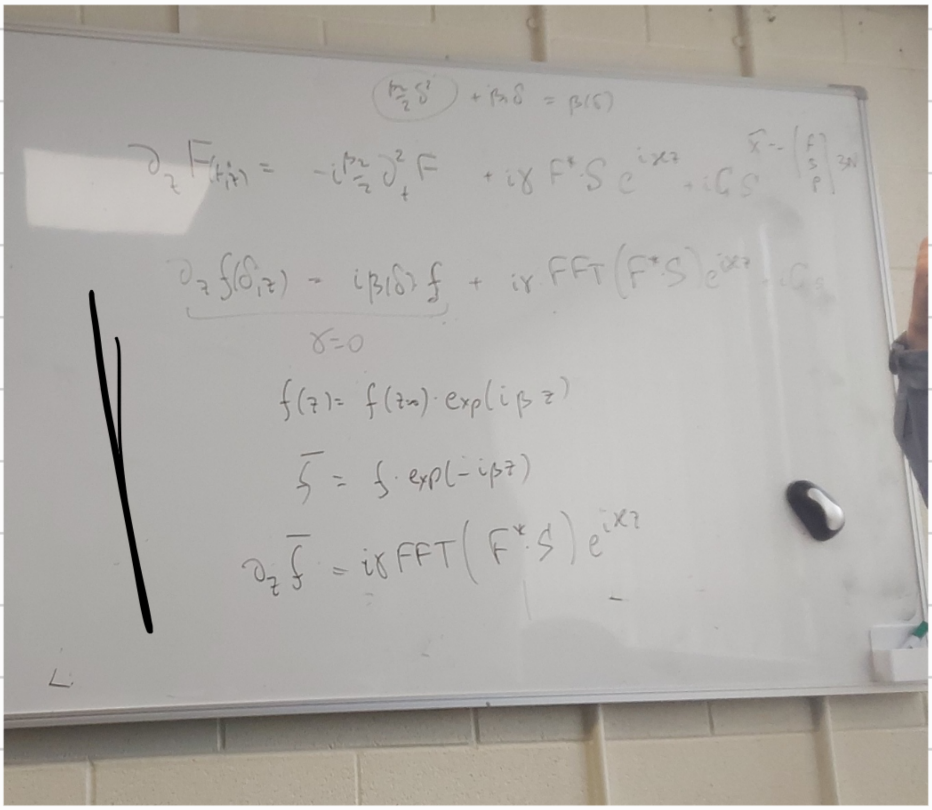
↳ serves as pump for 2nd waveguide

P is our 0 reference

code comments – improvement n° scheme

Trick code:

simplifies eqt



trick may not be necessary

second semester

Goal: $P(t,z)$ ← useful for the "quantum modelling part"

this semester $P(\delta,z)$

↑ more useful

↑ photon generation process

(plot of photons we may need

3 plots (separate) : 3 fields — I, S, P

3 spectrum — I, S, P