

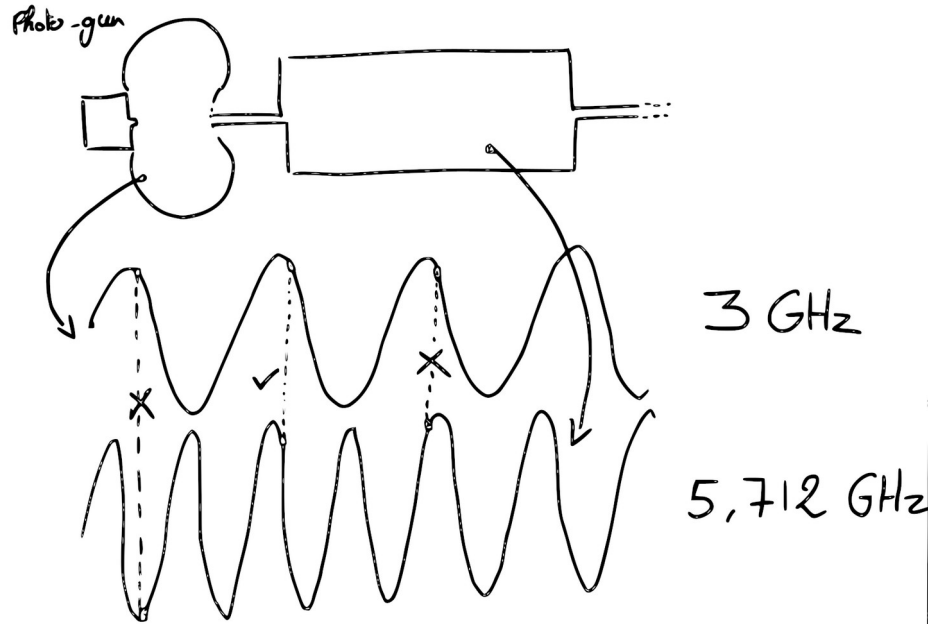
presentation of the timing and synchronization
issue for COLD

Timing and synchronisation challenges for COLD

There are 2 main challenges:

- Synchronise the 2 RF acceleration fields
- Fire the gun at a precise time to fill the correct bunch in the Storage Ring

RF accelerating field synchronisation

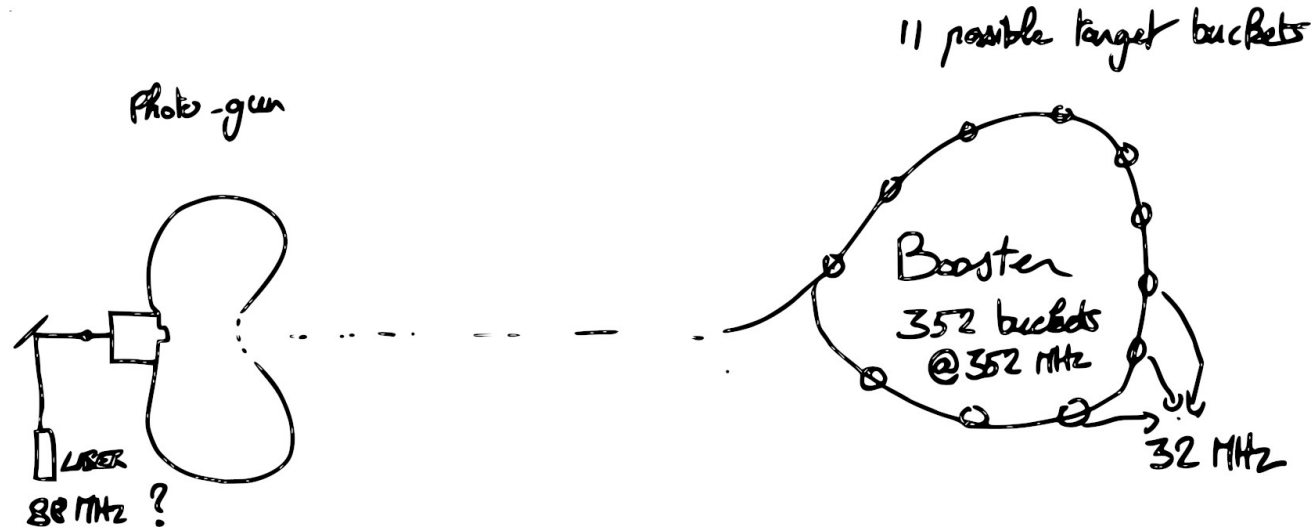


Electrons have to see RF fields at a precise phase

→ we need to control the phase of each RF field precisely with respect to each other

However the relationship between the different frequencies is not simple

Target the correct bucket in the storage ring



In order to fill the correct bunch in the storage ring, the Photo-gun has to shot a specific bucket in the booster.

In other word, the gun has to be synchronised with a signal at $32 \text{ MHz} = 352 \text{ MHz} / 11$