GengiScan

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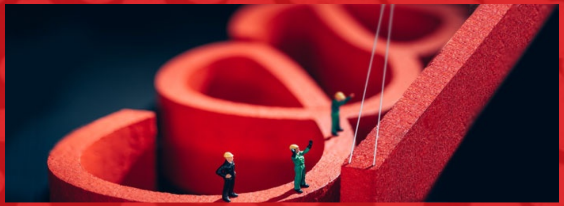
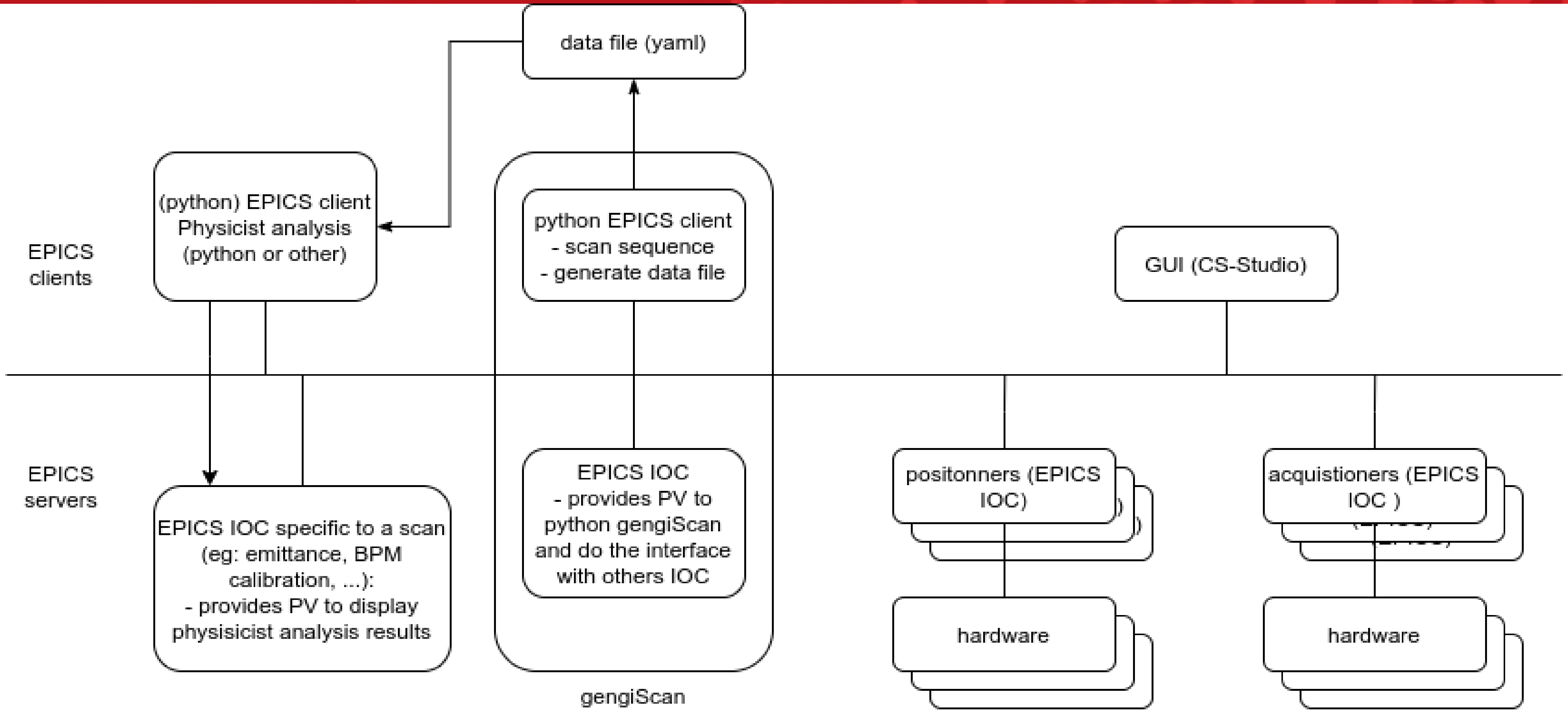
Definitions

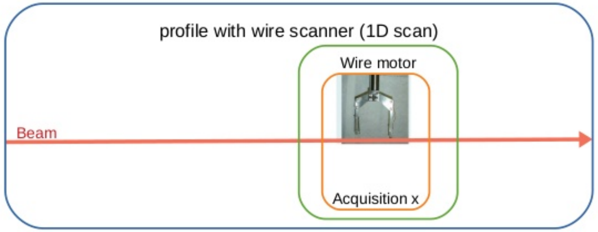


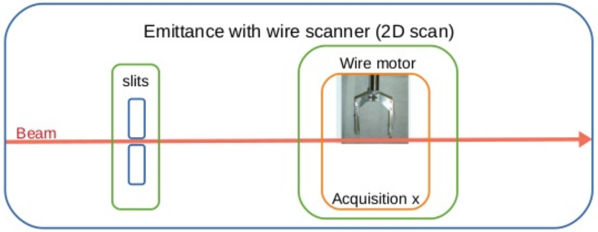
- GengiScan: GENius GenerIc SCAN
- Positioner: any actuator that affect the beam measurement
- Acquisitioner: system that acquire data for beam diagnostic
- Scan: a multiple-steps procedure used to save acquisitioner data depending on positioners position

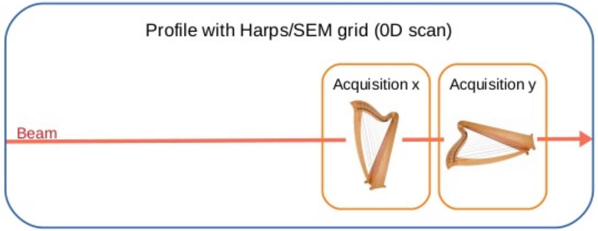
Architecture overview

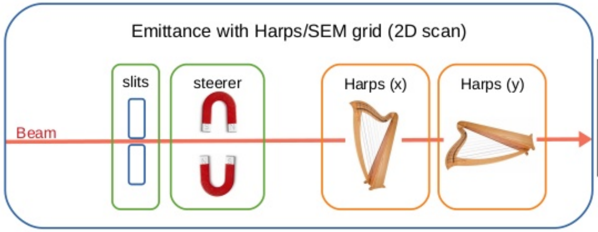


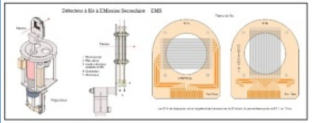
Use cases

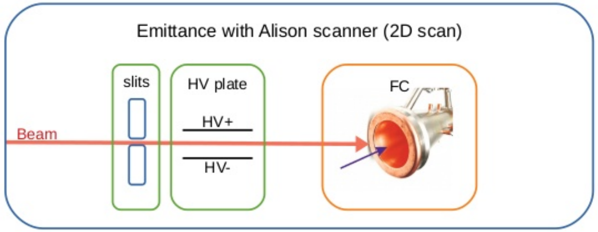

profile with wire scanner (1D scan)
Wire motor
Beam
Acquisition x

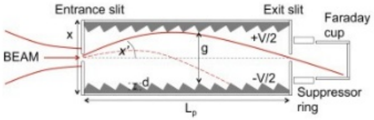

Emittance with wire scanner (2D scan)
slits
Wire motor
Beam
Acquisition x

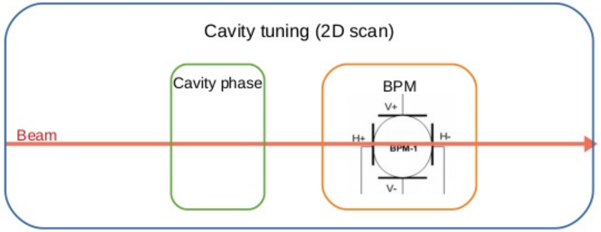

Profile with Harps/SEM grid (0D scan)
Acquisition x
Acquisition y
Beam

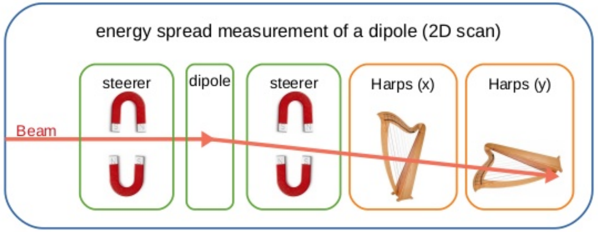

Emittance with Harps/SEM grid (2D scan)
slits
steerer
Harps (x)
Harps (y)
Beam




Emittance with Alison scanner (2D scan)
slits
HV plate
HV+
HV-
FC
Beam


Entrance slit
Exit slit
Faraday cup
BEAM
x
x'
g
+V/2
-V/2
d
Suppressor ring
L_p


Cavity tuning (2D scan)
Cavity phase
BPM
V+
H+
H-
BPM-1
V-
Beam

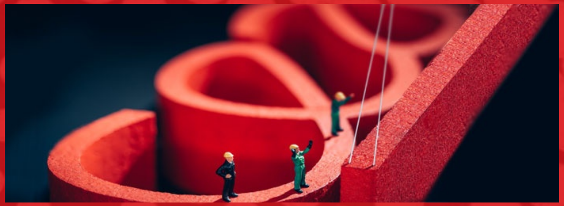

energy spread measurement of a dipole (2D scan)
steerer
dipole
steerer
Harps (x)
Harps (y)
Beam

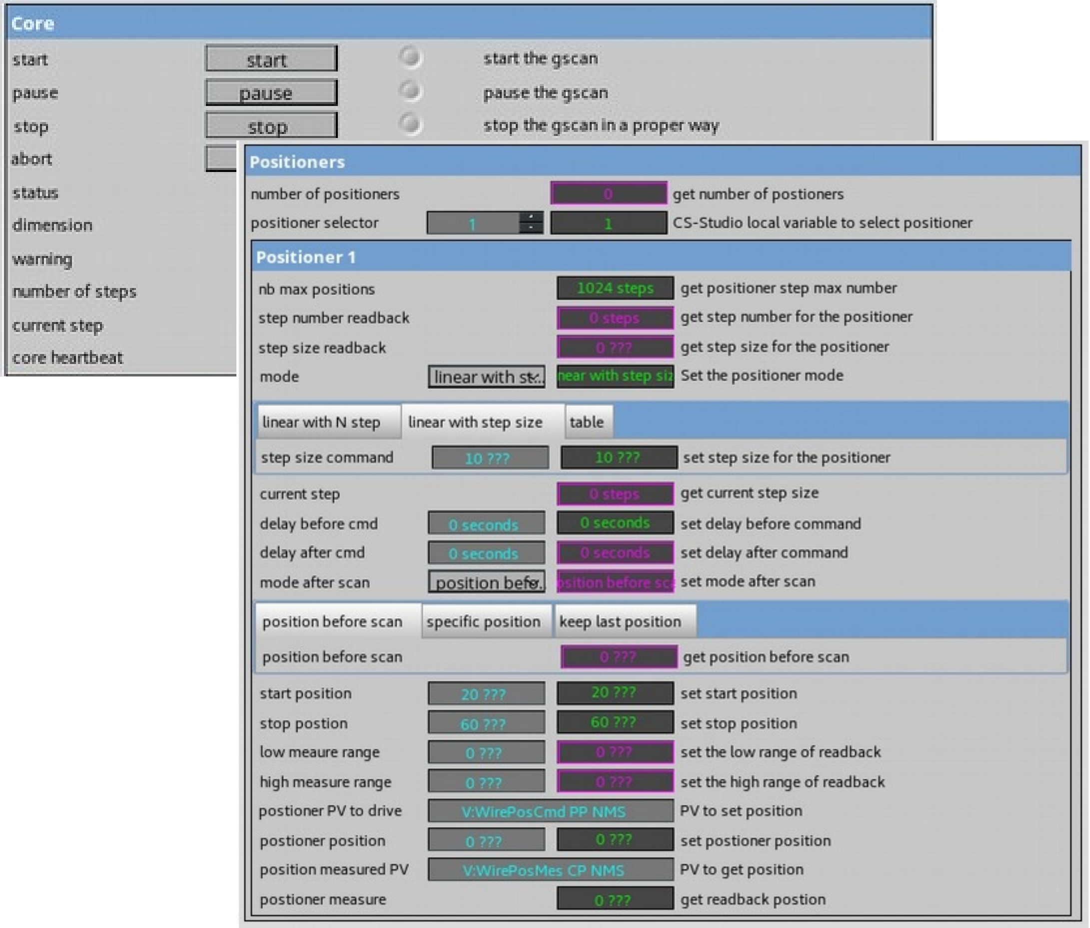
GengiScan real-world use

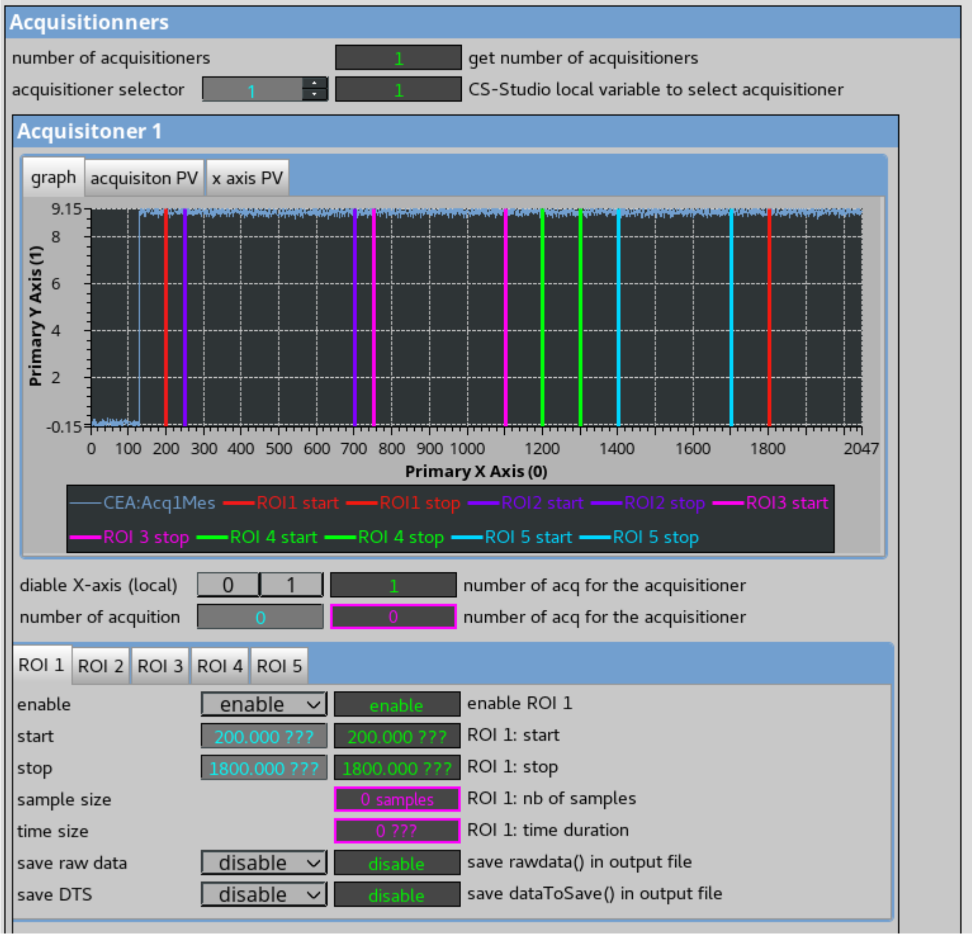
- SNRC (Saraf project):
  - Horizontal and longitudinal emittance (with wire scanner, HARPS, Faraday Cup)
  - BPM calibration
  - Cavity tuning

- IFMIF:
  - Dipole energy spread/dispersion measurement

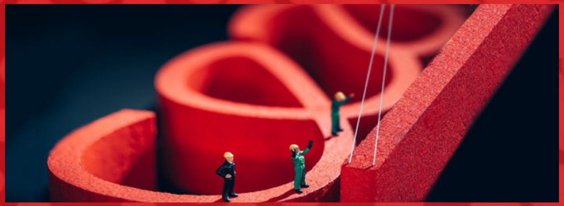
HMI screenshots

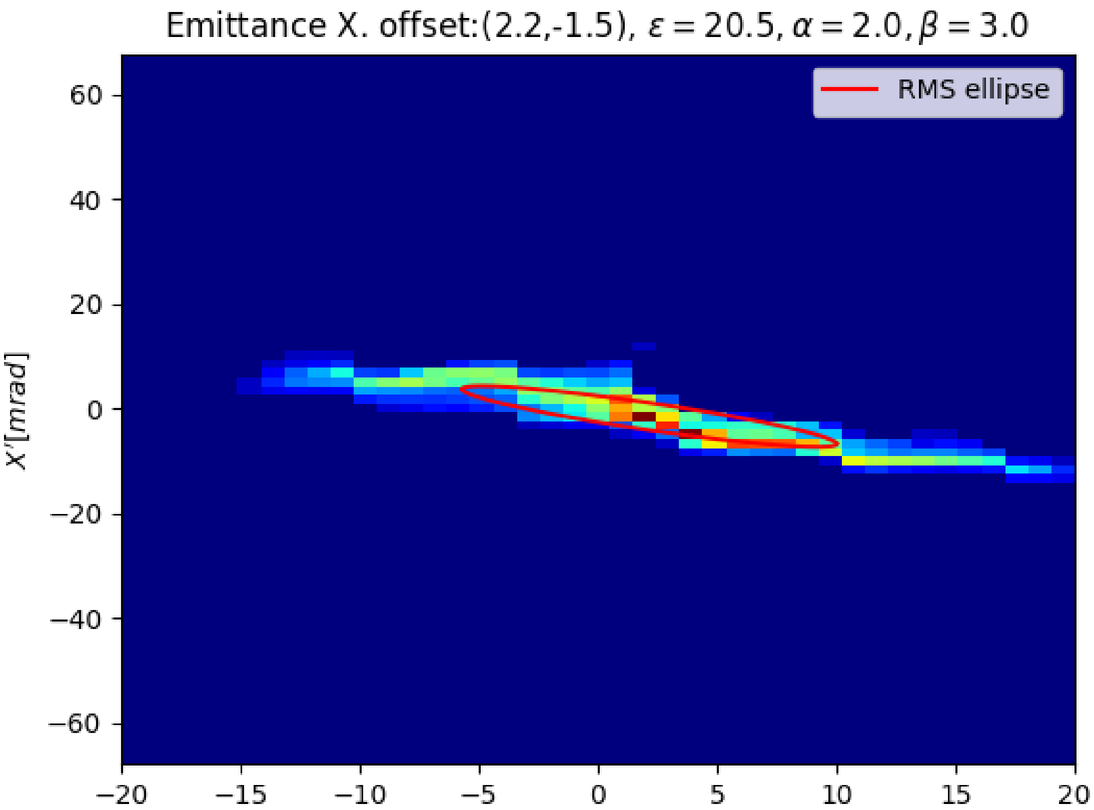






Some results





[2022/01] SNRC/Saraf, LEBT, emittance with wire scanners

Thank you for your attention!