

ESRF Motivation to organize a workshop on Beam Instabilities

- ESRF operates with various filling patterns :

High current Multibunch (with or without fractional filling)

Single bunch

16 bunch

Hybrid (multibunch + singlet)

- High currents achieved in all these modes well above thresholds by increasing the chromaticities

⇒ **Very detrimental to the lifetime**

Mode	Current (mA)	Lifetime (hours)
Multibunch	200	68
16 bunch	90	11
Single bunch	15	6

- Intensive studies of instabilities during the last years :

Observations

Theoretical approach (simulations)

=> interesting results but also a lot of questions !

- Are feedback systems the appropriate solution ?
- Do we understand all the mechanisms of the instabilities ?
- To which extent are our performances limited by the impedance of our machine ?
- What should we change if we were to re-build a more performant ESRF today ?

=> We hope to get some answers during this workshop !