



Contribution ID: 1

Type: **Oral presentation**

Measurement at the ESRF of : a) injection efficiency and b) the time-resolved losses of these injections

Monday 12 May 2025 10:30 (30 minutes)

a) The injection efficiency measurement is crucial for both operation and optimization studies for the ESRF Storage Ring (SR). It is performed by using a set of BPM-buttons and associated BPM electronics, in both the Injector and the SR and this yield results at each injection shot (4Hz), with sub % precision and even for a very low injected current of 50uA on top of the stored 200mA. This system and examples of its results will be briefly presented.

b) Our injection efficiency is in a range of 60 to 70%, and despite many efforts over many years to improve this we are today still losing about 1/3 of the injected beam. Gaining a better understanding of these injected losses is therefore important and involves systems like the Beam Loss Detectors (128 units in the SR) that can provide information on the localization of these losses, and also on the time-resolved structure of them. This time-resolved aspect will be shown here, also in comparison with other techniques like BPMs and visible light detection.

Associated questions to the DEELS audience and perhaps for a discussion (?) :

Is a good, or at least reasonable, injection efficiency important for your light source, or is it not much a concern ?

How do you measure injection efficiency ? with what precision/resolution ? at what rate ?

Can you resolve the time-structure of it and can you localize these losses in your Storage Ring ?

Author: SCHEIDT, Kees (ESRF)

Presenter: SCHEIDT, Kees (ESRF)

Session Classification: Session 1

Track Classification: Beam Losses