

Experimental setup at the SLS

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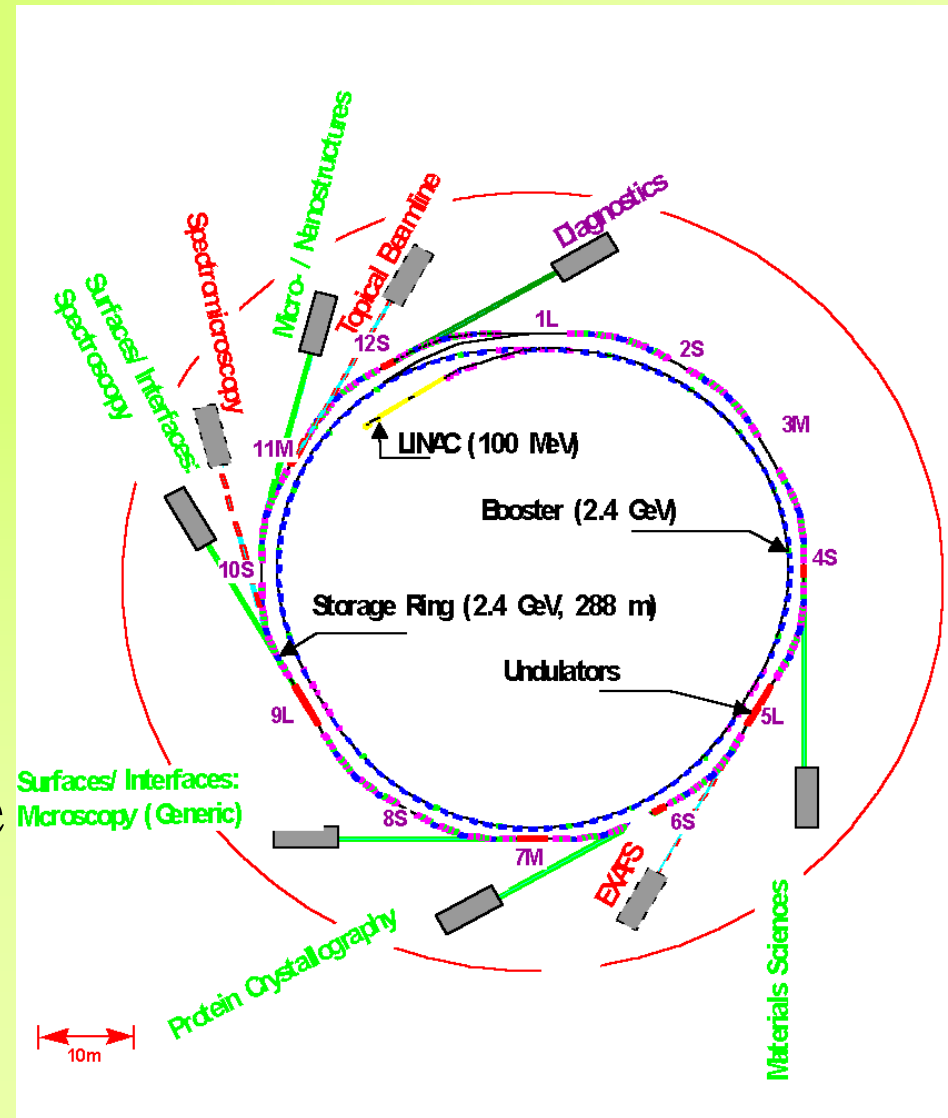
A. Streun, C. Gough

Overview

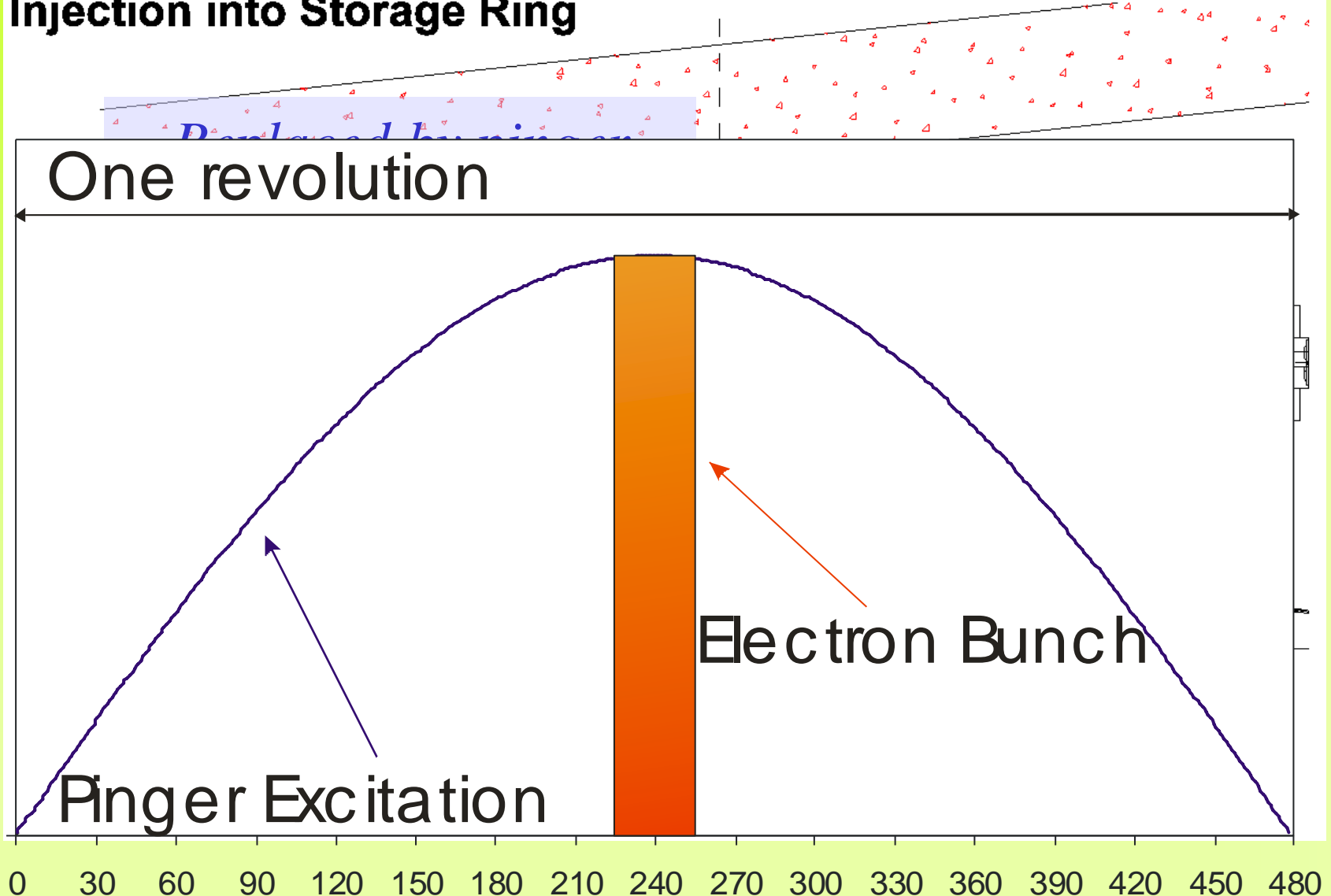
- Hardware
 - Pinger Magnet
 - Single turn BPM
- Software
 - Tune Measurement
 - Automatic Frequency Map measurement
- Problems
- Future upgrades

The SLS

- Is the last commissioned synchrotron light source in Europe.
- 2.4 GeV
- 400 mA
- 5 nm rad emittance



Injection into Storage Ring



Parameters

- Betas not optimal ($\beta_x = 5$ m, $\beta_y = 4.3$ m)
- Horizontal Kick:
 - 0.714 mrad/kA, up to 1.6 kA, 1.1 mrad
 - Max 6.5 mm×mrad → Around 1/3 of the theoretical DA
- Vertical Kick:
 - 0.369 mrad/kA, up to 1.6 kA, 1.1 mrad
 - Max 2.5 mm×mrad

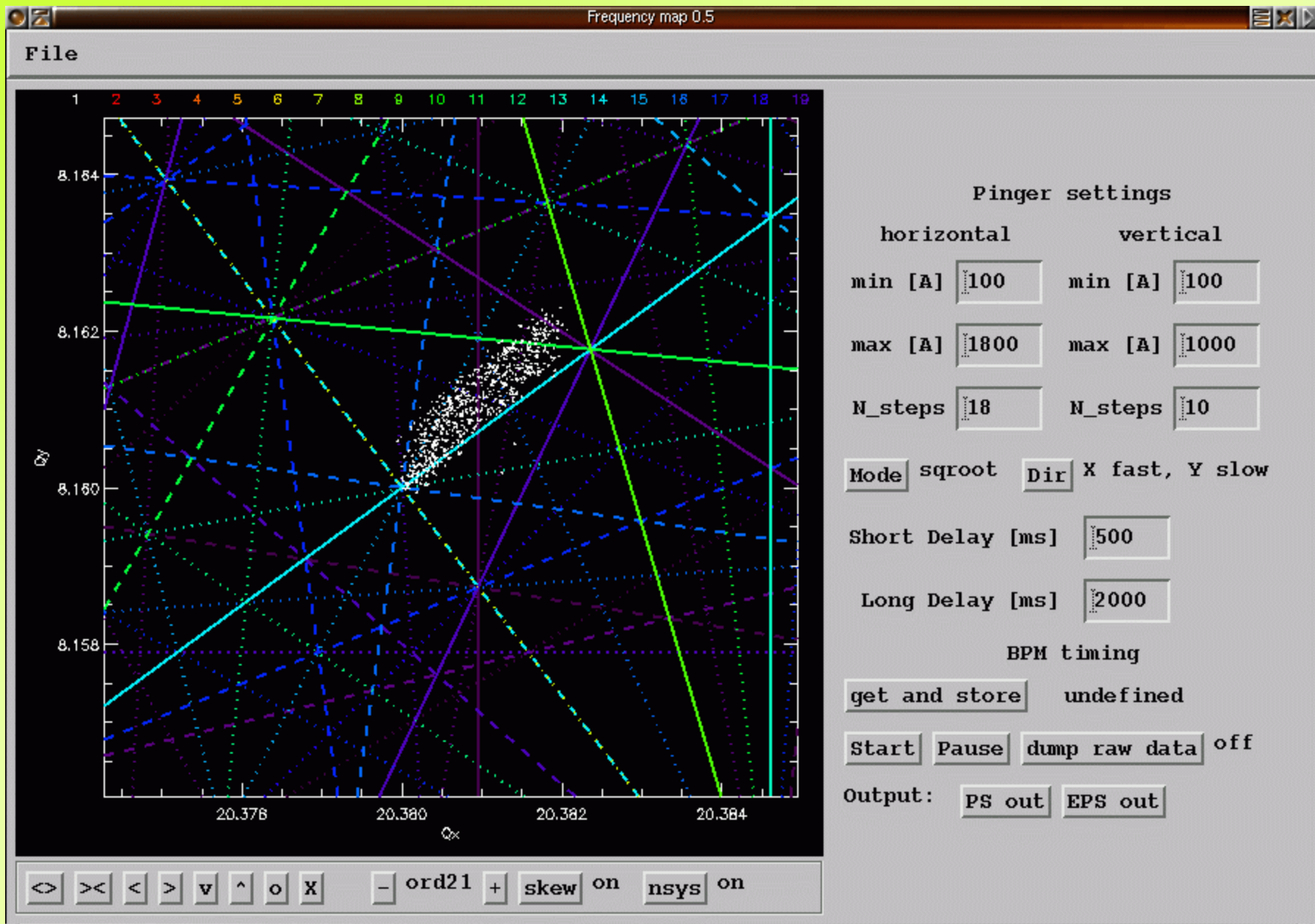
Single turn BPM

- We use the tune BPM for getting the data.
- Resolution about 20 μm , when using this partial filling and minimum gain.
- 4040 points of data.
- Synchronized to start acquiring data 50 turns before the pinger fires.

Tune Evaluation

- We use the SLS data.
- Several methods:
 - FFT
 - FFT with peak finding
 - NAFF
- Two tools:
 - Java application
 - Corba service
- Best results after that the





Problems and Upgrades

- Synchronization!
 - The high level applications are a bit slow.
 - The system is running at 3 Hz, continuously.
 - Replace the periodic trigger by a single one.
- The shape of the excitation varies (slightly) with the current.
- Increase the horizontal excitation amplitude by a factor 3.
- The SLS lattice has very small amplitude dependence tune shift. We do not see much 😊