Proposed programme for the forthcoming mini-workshop on WP2 of the collaboration on RF:

Wednesday 23 June 09:00 – 12:10

09h00 – 09h05: Opening remarks (Patrick Marchand)

09h05 – 09h45: Simulations of Robinson Instability for SLS and SLS 2.0 with ELEGANT PSI

Lukas Stingelin (PSI)

[Abstract] In SLS, a passive superconducting third harmonic cavity, Super-3HC is used for bunch lengthening and Landau damping of coupled bunch mode instabilities. To avoid additional stress of the tuning-system, the operator, in case of longitudinal coupled bunch modes during accumulation or low and high voltage at the nominal beam current of 400mA only tunes the harmonic cavity manually. At low current and during accumulation, the voltage is therefore far from the ideal lengthening condition. The effect of the Super-3HC on the low current Robinson stability limit was never studied in detail nor measured at the SLS so far.

We present preliminary simulations with ELEGANT for the case when we reach the low current Robinson stability limit. The situation of SLS will be compared to the case of SLS 2.0.

09h45 – 09h50: Questions/comments

09h50 – 10h05: Transient beam loading with normal conducting harmonic RF system

Alexander N. Matveenko (BESSY)

[Abstract] Transient beam loading in BESSY II light source is analysed for different ratios of the main to 3rd harmonic RF amplitudes. Measurements of individual bunch arrival times of a typical fill pattern in standard user operation mode with avalanche photodiode and streak-camera are compared with a simple MATLAB based model

10h05 – 10h10: Questions/comments

10h10 – 10h50: mbtrack calculation results of bunch lengthening operation at SOLEIL-U ring

Naoto Yamamoto (KEK)

Several calculations have been carried out using mbtrack assuming a passive SC harmonic cavity (HC) at SOLEIL-U ring. In this presentation, the following calculation results shall specifically be shown and discussed; 1) SOLEIL-U 3/4-filling with harmonic and kicker cavities, 2) single-bunch results with HC, 3) impact of direct RF feedback.

10h50 – 10h55: Questions/comments

10h55 – 11h00: Pause

11h00 – 11h40: Simulation results for SOLEIL upgrade

Alexis Gamelin (Synchrotron SOLEIL)

[Abstract] In this presentation I will show the beam dynamics tracking results for the RF system planned for SOLEIL upgrade. I will first present the beam dynamics using a 3rd harmonic cavity assuming a uniform filling pattern then show the impact of non-uniformities with a variable gap in the bunch train and a filling pattern measured at SOLEIL. Then in the second step, I will talk about reduction of the HOM instability threshold due to the harmonic cavity.

11h40 – 11h45: Questions/comments

11h45-11h55: Short intervention by Jörn Jacob (ESRF)

DC Robinson instability with an active harmonic cavity, in anticipation of future simulation results

11h55 – 12h00: Questions/comments

12h00 – 12h25: Discussions/Closing remarks (by all participants)