

Minute of the 1st FCCee WP4 Meeting
WP4 - Damping Ring and Transfer Lines
2020/jan/28
TITLE : Discussion about the 2021 DR optics

Number of Participants (6):

- * Catia Milardi
- * Antonio De Santis
- * Oscar Roberto Blanco Garcia
- ** Salim Ogur
- *** Katsunobu Oide
- + Paolo Craievich

Laboratory

- * INFN, Italy
- ** CERN, Switzerland
- ***KEK, Japan
- + PSI, Switzerland

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Written by:

C. Milardi, A. De Santis, O. Blanco

This is the first meeting dedicated to Work Package 4 (WP4) related to the FCCee Injector Damping Ring (DR) and transfer lines (TL).

C. Milardi started the meeting addressing the method to exchange and store information for the Working Group and others.

P. Craievich answered that it might be possible to use the CERN structure, but, he will need to check if it is practical for non-CERN users.

S. Ogur suggested to use the gitlab CERN structure.

C. Milardi ask about the reasons to define the damping ring energy of 1.54~GeV.

K. Oide said that it is driven mainly by the half integer spin tune requirement, but, in principle, it's possible to move the DR energy taking care to respect the aforementioned constraint.

A brief description of damping time and synchrotron power was given by K. Oide and S. Ogur in order to show that it might be possible to study some other energy. Complete flexibility was given to C. Milardi for further studies.

On the subject of Synchrotron Power, C. Milardi pointed out that the total power of 100 KW foreseen for the sole Damping Ring is comparable with the entire FCCee machine and this could be very difficult to dissipate.

S. Ogur mentioned the synchrotron power is driven by the requirements of damping time and few other bunch train and timing structures could be studied to reduce this value, but, it also involves the LINAC optimization studies from a separate WP.

With respect to the Damping Ring optics designed by S. Ogur as of Jan/2021, he will share a version in SAD that will be translated by K. Oide to MAD-X code which is widely used by the INFN optics team.

It was mentioned by S. Ogur that Intra Beam Scattering can be calculated with SAD.

For the Coherent Synchrotron Radiation, C. Milardi suggested the Elegant code.

K. Oide referred to the work by Tessa Charles at CERN.

S. Ogur said that the Bunch Compressor needs to reduce a factor 10 the bunch length from approximately 2 mm rms.

P. Craievich said that less 1 mm rms might be OK if the LINAC opts for S-Band or C-Band technology.

A. De Santis raised a questions about any already performed survey study. For the moment only Alexei has done some preliminary work that does not imply any limitation for the design of DR and TL's.

C. Milardi ask about the final goal of the Damping Ring Study.

P. Craievich answered that the final goal should be the cost estimate of the Injection Complex with some details concerning needed hardware and technical design.

End of meeting.
