Beam Dynamics Simulations.

Plan for October-November 2012

Evgeny Kot

Subject: Two different charges in the same train of XFEL

1. Get complete optics agreement between MAD version and the S2E procedure for the basic case, i.e. without any self fields.
2. Track 250pC and 500pC within the same optics and RF - parameters.
   Check lasing of these bunches with Genesis.
3. Establish routine procedure implementing 2d injector scan --> S2E->Genesis and find the working point.
4. Start writing internal report about S2E simulations for XFEL (with I. Zagorodnov, M.Dohlus and T. Limberg).

Hyunchang Jin

Subject: BBA in undulator section of XFEL

1. Genesis simulations without and with aligned quadrupoles.
2. Genesis simulations for orbit correction with quadrupole and BPM errors.
3. To write MAD<->Elegant convertor for FLASH and XFEL optics (in Matlab).
4. Make a talk at BD group meeting in October.

Guangyao Feng

Subject: Impact of ACC1 gradient on SASE in FLASH

1. Match the beam to the design lattice after ACC1.
2. Get complete optics agreement between MAD version and the S2E procedure for the basic case (161 MeV in ACC1) without self-fields. Beam energy at BC2 is 150 MeV.
3. Analyse optics mismatch for the case with self-fields and correct the qudrupole strength if required.
4. Find RF parameters of ACC1 and ACC39 for increased gradient of ACC1 (165 MeV in ACC1) . Beam energy at BC2 is again 150 MeV. Exactly the same optics as before.
5. Analyse optics mismatch to design optics and to the nominal case.
6. Analyse SASE for these two cases and suggest an experiment at FLASH.
7. Make a talk at BD group meeting in November.

Igor Zagorodnov

Subject: S2E procedure and webpage

1. FLASH simulations with Elegant and comparison with previous results.
2. XFEL simulations with Elegant and for the whole machine.
3. New webpage design.
4. New tools on the web: convertors (MAD<->Elegant, Elegant<->ASTRA, Elegant <->CSRtrack)

25.09.2012 Igor.Zagorodnov@desy.de