

Minutes of RESULTS, PITZ Physics Seminar, 18.06.2015

Project: PITZ

Participants. F. Stephan, G.Vashchenko, I. Isaev, C. Hernandez-Garcia, M. Krasilnikov, G. Gross, A. Oppelt, O. Lishilin, M. Bark, J. Good, Q. Zhao, S. Rimjaem

Agenda:

- 1) Run coordinate (RC) meeting (G.Vashchenko)
- 2) AOB (F. Stephan)
- 3) Summer students (A. Oppelt)
- 4) Core + halo beam study (C. Hernandez-Garcia)

Results:

- 1) RC meeting
 - Cathode image was tried to monitor by using screens in the low energy section. It seems to be successful but limited by the camera alignment. All three low screens show similar structure but with different solenoid currents. The simulation has to be done to compare with the measured result.
 - uTCA LLRF server has problem. It was the problem of synchronization between TINE and DOOCS. The problem seems to be solved.
 - Dark current was measured on 15.06.2015 and the value increased when compared to the previous measurement.
 - Emittance measurement for 100 pC with different BSA: It was found that the BSA which provides the minimum emittance value is 0.8 mm. The emittance value is larger than the last run weeks. This might come from the laser inhomogeneous. M. Gross can move the location of BBO to improve the situation. For different gun phases: The dependent on the gun phase is very flat.
 - Exchange of the new cathode will be conducted.
 - The RF calibration with the coupler for TDS from the Russian colleagues was not reliable for the actual setup. The new calibration has to be done. The mounting of the dummy load will be conducted as well.
- 2) AOB
 - Distribution of DESY accelerator, which people should
 - HZB will have the outing day to DESY, Zeuthen on July 8, 2015. The tour to the PITZ tunnel will be included. It starts at about 14:30. The tour will be in both German and English.
 - The PITZ run in August will start for the plasma cell after the week of FEL2015. This will depend on the weather condition and the cost for electricity.
 - Proceedings for FEL2015 have to be ready well in advance. Then, all contributions have to send to the collaboration broad 2 weeks before submission. Otherwise,
 - Current clamp for the main solenoid

- 3) Discussion of the works for 2 summer students (both are female)
- Study of field profile of the gun on the emittance by using ASTRA. The integral of the power can be included. The study of solenoid position and magnetic field profile on emittance can be included.
 - Study on UV mirrors for laser.
 - Simulations on cathode imaging.
 - QE study of the cathode.
 - A. Oppelt will get information about the background of these students.
- 4) C. Hernandez-Garcia ‘Core + halo beam study’:
- Halo changes with increased laser transmission (LT). This might come from the normalization of the intensity? Why does the plateau width reduce with higher LT?
 - Extracted charge for different gun powers and phases.
 - The flat-top laser pulse provides better agreement between the simulated and the measured results than the Gaussian laser pulses.
 - The semi-analytical model by M. Krasilnikov, which includes the rms size (Σ_r), the core radius (R_c) and maximum charge (Q_{max}), shows the results close to the experimental data.
 - Core + halo input distributions in ASTRA renders closer agreement with emittance measurements than using uniform core input distributions.
 - Halo study by using Matlab script to produce ASTRA input: core_halo generator for ASTRA.m

Next steps:

What is to be done ?	By whom ?	Until when?	Done on
Exchange of BBO	M. Gross	big shut down	

Protocol prepared by
Sakhorn Rimjaem, 18.06.2015