

Minutes of PITZ Physics Seminar, 09.04.2020

Project: PITZ

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Agenda:

- 1) AoB
- 2) Discussion with Grygorii
- 3) Talk of Guan

Results:

- 1) AoB
 - a. Final decision on shift operation to be done next week (director meeting)
 - b. Prepare to start run on April 20th
 - c. Keyboards etc.: Keyboards, sanitiser, face mask, all under preparation, should be available in time
 - d. Grygorii: Problems with laser shutter. Might delay problems
 - e. Frank: Do we have spare laser shutter? James: Yes
 - f. Frank: Concentrate on Laser repair
 - g. Houjun: Who will align laser? Anne: I will talk to Matthias
 - h. Prach: Reminder: Inform your office colleagues, when you want to come to office
- 2) Talk by Guan
 - a. RF heating in simulation smaller than in experiment
 - b. Mikhail: Main contact of cathode with cavity is via spring (in simulation). When inserting the cathodes it feels like pushing cathode to touch gun, i.e. there will be good heat conductivity between cavity and cathode
 - c. Houjun: Should not change the result, see page 6
 - d. Frank: Gun valve is where the cathode is hold
 - e. Houjun: SC gun community report the case which Mikhail reports
 - f. Frank: Stress is 10 MPa. Is this risky? Not at 185 us (10 Hz) rf flattop length, but cannot be increased
 - g. Houjun: Stress still within limit, but Gun5 would exceed limits. Paramanov recommends reduction of stress to 30 MPa (despite material limit being 60 MPa)
 - h. Frank: Loss of Gun4.2 not to be mourned. I was a good gun.
 - i. Grygorii: Different temperature of backplane changes gun shape to conic. Effect? Half-cell volume is smaller, in simulation full cell had to be increased to still have gun at 1.3 GHz. Field balance increased, coupling factor increased to 0.08% (zero reflection before)

- j. Houjun: Measured emittance might change. Will it be caused by green cathode materials, or different gun shape. But can be tested in experiment by doing another comparison measurement with CsTe
 - k. Mikhail: Beam energy should be slightly lower (for same cathode gradient)
 - l. Frank: I think we should have backplane at 27 deg C. Let us further analyse the option
 - m. Frank: We should not expect too much from green cathodes.
 - n. Frank: Long-term behaviour of temperature sensor TF324 should be analysed (in gun_water.xml)
 - o. Frank: Can the simulation be repeated with realistic model to get better prediction? Houjun: Problem is not cavity model in simulation, but boundary conditions.
 - p. Frank: Sebatian and Joerg, please prepare change of water cooling. According to Joerg, 27 deg C water availability in tunnel is easy
 - q. Houjun: HH says. No publication shows, that hard copper has lower DC
 - r. Frank: We could be first to prove, or to say it is not the case. We should definitely do it!
- 3) Report from Grygorii (on logbook status)
- a. New logbook looks almost same
 - b. Red warning flag introduced, when people forget to fill out operation time
 - c. Printing to logbook: View problems seen, Zeuthen experts look into it. When done, we can migrate
 - d. Status window in logbook: When it can be updated automatically, we should fix it. If not, we should remove it.
 - e. Prach: Better have it in another window. Frank: let us first answer the first questions
 - f. Should we migrate when new logbook is ready? MK: Yes.

Next steps:

What is to be done?	By whom?	Until when?	Done on

Protocol prepared by
R. Niemczyk, 9th April 2020
(Name, Date)