

Status of Questions and Actions from the meeting of 10/2016

Ray Veness

<https://indico.cern.ch/event/567704/>

Questions and actions 1/2

- Approval of the contract documents by CERN should be followed-up (Rhodri) **Done**
- Need to ensure nozzle is centred in the plate (Gerhard). **See Tom's talk**
- We need to measure the actual lower pressure in the nozzle chamber with a Penning gauge (Gerhard). **<status?>**
- Measurement of the uniformity of the jet - factor of 2? Good enough – OK for positioning but not for characterising the beam? Is this the measurement or the curtain itself? Can we explain the difference between measurement and simulation (Hao and Roberto). **<status?>**
- List of possible sources of stray light and give input to the design (Peter, Gerhard). **<status?>**
- Ask Paolo if he included the first nozzle in the data he gave Roberto - remake a simulation with this input (Ray, Roberto) **<status?>**
- Make further MoFlow simulations for pressure in interaction chamber and alignment. **See Marton's talk**
- Can we obtain an absolute value for the gas molecular density - will need to scale the simulation from Roberto and compare with the vacuum gauge data (Roberto/Hao) **<status?>**

Questions and actions 2/2

- Do we buy a camera that is sensitive to Ne wavelengths? **Decided no for the moment.**
- Do not consider radiation hard components for the next prototype - just get BIF working reliably in the lab. **OK, implemented.**
- Need to make sure that the diameter of the holder does not interfere with the flow from the nozzle (Gerhard). **OK, implemented.**
- Do we buy another electron gun (Carsten). **Yes, done.**
- Do we pulse the gas in the new prototype? Baseline is no unless we have pressure problems. **Still the baseline?**
- Do we need to blacken the inside of the interaction chamber? (Serbian/Peter/Gerhard). **Decided no?**

Next Steps

- Measurements at cockcroft of fluorescence are the top priority. Demonstrate there is a signal by the end of the year before movement of the existing system. **Done**
- Finalise the engineering design of the tank followed by detailed drawing and manufacture. **Design complete. Manufacture in progress.**
- Make tests and samples to show how we align the nozzle in the tube. **In progress – see Tom's talk.**
- Continue with the high and low pressure gas simulations. Understand the impact of the first skimmer on the flow. Give input to the pumping requirements from the MoFlow simulations. Compare the simulations with the gauge measurements. **In progress – see Marton's talk**
- Agreement that the new test system should be designed to allow measurements with both Neon and Nitrogen. **Yes, still the baseline**

Possible research topics

- Continue with the high pressure gas dynamics study from Paolo - need new resources (FCC fellow?). **No new CFD analysis since summer 2016. Need a solution here.**
- Lacking data for cross sections of gas interactions at LHC energies - extrapolation over more than an order. Do we need data or simulations at higher energies? **<Status?>**
- Movement of the gas in the space charge field. Is this studied by GSI? **<Status?>**