SPL/Soltan-Institute (IPJ) Poland collaboration meeting, 18.11.2008

- present: Slawomir Wronka, Alessandra Lombardi, Ed Ciapala, Olivier Brunner, Vittorio Parma, Joachim Tuckmantel, Frank Gerigk, Sergio Calatroni

Slawomir Wronka presented the capabilities of the Soltan Instititute and said that he is leading a accelerator theory group which will have up to 15 people (presently 7). He is interested in beam dynamics and subjects to do with Superconducting cavities. S. Wronka will come to the SPL collaboration meeting. During the discussion we identified the following potential subjects for collaboration:

1.) OPAL beam dynamics simulation of Linac4/SPL and possibly of PSB and PS2. This will be done in collaboration with A. Adelmann from PSI who developed the OPAL framework. The idea is that one member of the Soltan Institute (possibly a PhD student) learns how to use and install the code and to adapt it to the needs of proton linac simulation. It will then be used for error simulations and design verification with large numbers of particles (>1e6). Whether the code is useful for PSB simulations still needs to be evaluated. **addition after the meeting:** It was decided to use the presently used codes (mainly Trace_Win) for beam dynamics simulations of the SPL. Work will start immediately.
2.) Multipactor simulations for the power couplers. This work would need close collaboration with the team that designs and constructs the actual coupler.
3.) ANSYS simulations to investigate the mechanical behaviour of the cavities in pulsed mode: Cavity stiffness, Lorentz force detuning, mechanical vibrations, ringing,... Also this work needs to be closely integrated with the team that designs and constructs the cavities.
4.) Collimation for the SPL: design of collimators suitable for use in the SPL. This includes the choice of materials, geometry of the collimators, the resulting activation for certain beam power levels, calculation of particle showers,
5.) FLUKA simulations for radiation protection issues (dumps, access issues, shielding, activation of materials...).

The following subjects were excluded:

- Thermo-mechanical simulations or fluid dynamics for the cryo-modules. This is treated by a different institute in Poland.
- Simulation work for surface treatment (Elektropolishing).

1) can start very soon and seems very suitable, 2) and 3) need to be defined in more detail during the collaboration meeting. 4) needs to be discussed during the collaboration meeting to avoid any overlap with the Cockroft Institute, 5) must be discussed internally to understand how much work can be done at CERN

-- FrankGerigk - 18 Nov 2008

- presentation by Slawomir Wronka:

This topic: SPL > IpJ
Topic revision: r2 - 2008-11-20 - FrankGerigk