FSC status

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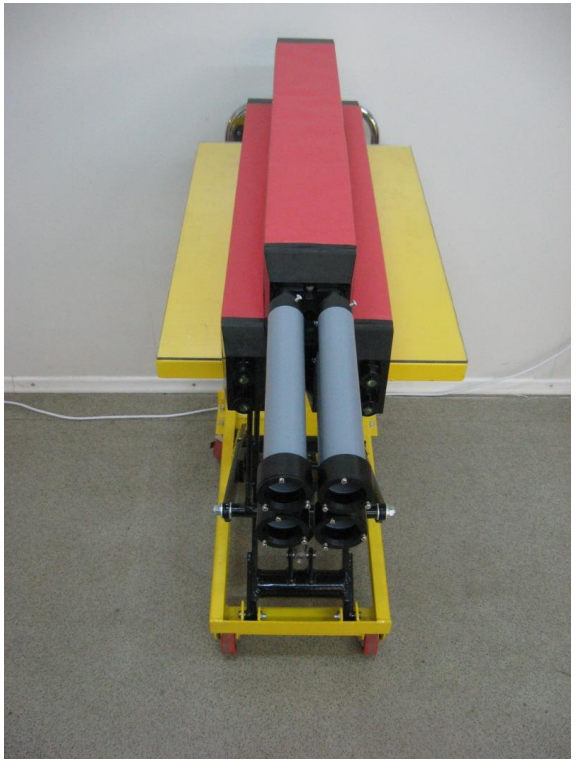
Overview

- FSC prototype
- New scintillating tiles light output
- Radiation hardness of the optical fiber loops

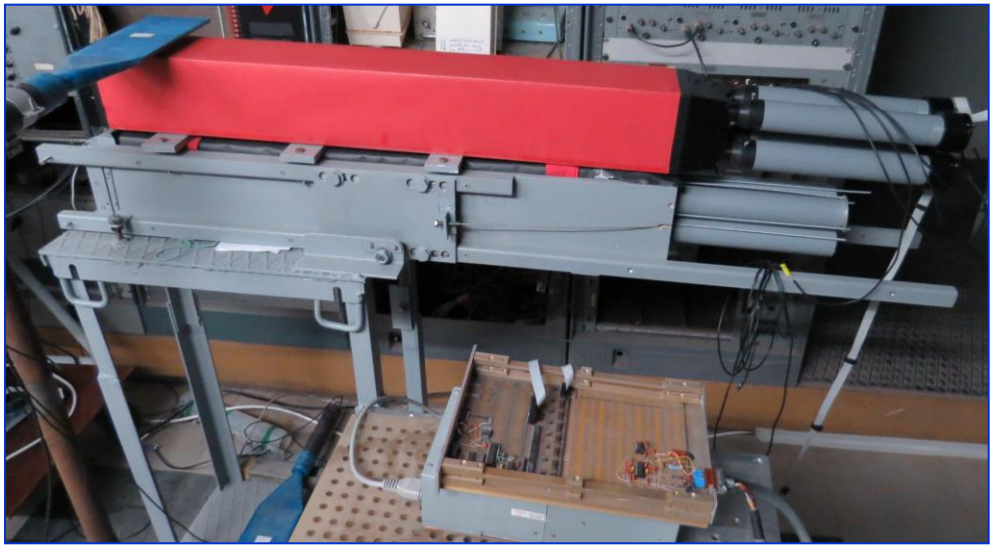
New shashlyk prototype status

- A set of 5 modules (4with Tyvek+1without Tyvek) is ready to be tested.
- Paperwork for modules (4) shipment to Germany is in progress.
- The length of the module is ~10 cm longer (Tyvek thickness is 150-200 mkm), effective Moliere radius increased
- High voltage generators of type B (linear up to 100 mA of output current) production will be finished in a few days
- Modules can be shipped just after tests with cosmic muons (likely in January 2014)

New FSC prototype manufacturing



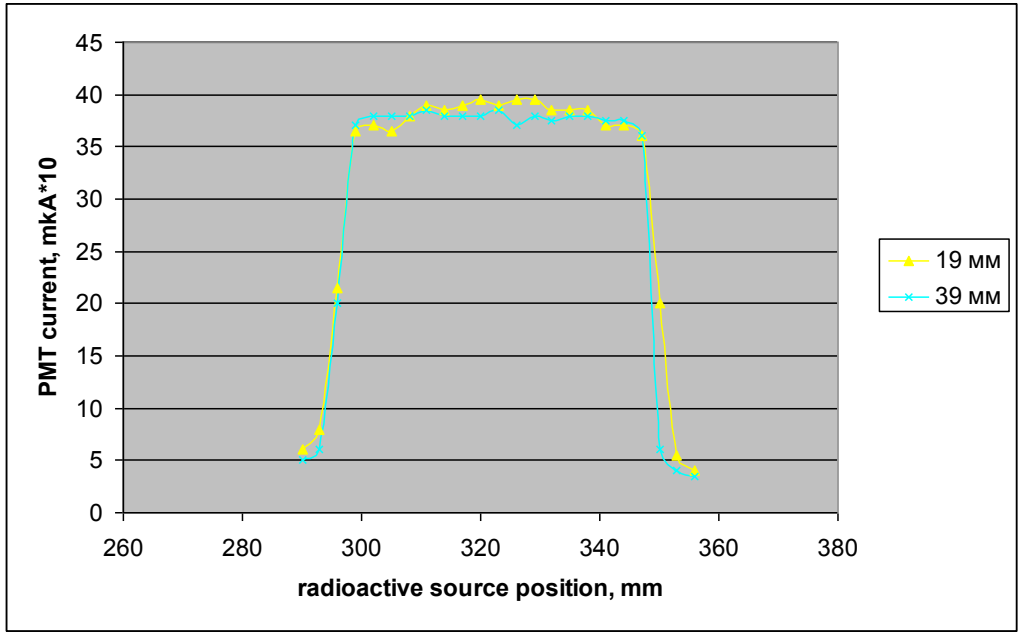
FSC prototype on the cosmic muons test stend



All prototype modules will be tested with cosmic muons before shipment to Giessen

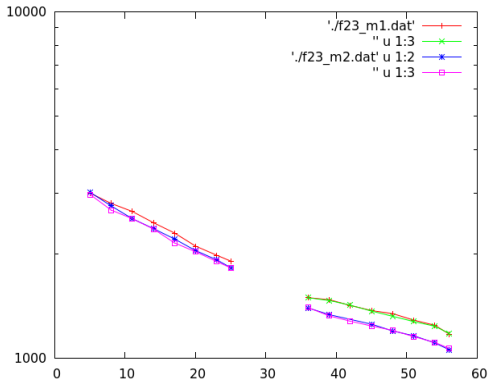
New tiles light output measurements

- Light output of the tiles with painted edges and with/without Tyvek was measured with radioactive source on the dedicated test setup
- Painting edges increases light collection on 60%
- Tyvek under and on the tile gives 40% increase in comparison with black paper
- Uniformity of ligh output for the tiles with painted edges was measured with collimated radioactive source +/- 5%
- Cross talk between two tiles with painted edges (double layer) is not measurable with radioactive source



Optical fiber irradiation studies

- Fiber loops were irradiated up to 170 krad (10 years of PANDA operation for the most heavy loaded FSC area)
- Fibers absorption length was measured before and after irradiation. Test setup based on a program written for a LeCroy oscilloscope
- Irradiation of the loop region of the fiber effectively increases the length of the loop by ~5 cm



Conclusions

- New FSC prototype (4+1 modules) is ready
- Light output of the new prototype is expected to be factor of 1.5 higher, but length of the module increased beyond the FSC limit
- Optical fiber is radiation hard enough for PANDA FSC
- Prototype will be shipped to Giessen in January 2014 and tested at Mainz in the middle of February 2014