

MYRRHA - CERN collaboration day, 27 February 2020

Proposal: "Beam Instrumentation"

CERN Participants: F.Roncarolo

MYRRHA Participants: D.Vandeplassche

Topic:

- *LINAC beam instrumentation*

Goal(s):

- *Longitudinal beam structure monitoring*
- *Beam Loss monitoring , ICs procurement*

Timeline:

For RFQ commissioning (?)

CERN support for this project is 30 = nice,, 5 = crucial): 3

Collaboration proposal (most with open question marks)

Benefits for MYRRHA:

- Fast Faraday Cup (FC) @ xxx MS/s → need to define xxx at first
 - Particularly useful if implemented before FESHENKO monitor procurement (2yrs)
- LHC type IC BLMs procurement (studies to confirm ICs are good choice from xx to 100 MeV)

MYRRHA contribution:

- *Finance a Fellow (or PJAS or equivalent manpower) and prototype FC system production*
- *Irradiation facility(ies) (?) access for CERN-BE-BI components rad tolerance (e.g. CMOS sensors)*

MYRRHA technical contact: xxxx

Benefits for CERN:

- *New development potentially usable at L4 and L3 (especially if FC = segmented FC)*
- *Access to neutron irradiation facilities? (e.g. for validating CCD sensors rad tolerance, to be checked usefulness of neutrons irradiation)*
- *Access to MYRRHA low energy diagnostics design (e.g. LEBT Hallison scanner) (?)*

CERN contribution:

- *Fellow supervision*
 - *conceptual design*
 - *Mechanics design / integration*
 - *Analogue and digital front end electronics*
- *tests at L4 test stand (?)*
- *Test at L3 (?)*
- *BLM design (likely drawings not CERN property)*
- *BLM electronics (?)*