

MYRRHA - CERN collaboration day, 27 February 2020

Proposal: "Reliability of the MYRRHA Accelerator"

CERN Participants: J. Uythoven, A. Apollonio

MYRRHA Participants: D. Vandeplassche, U. Dorda

Topic:

- *Reliability analysis for MYRRHA accelerator (extrapolated from phase-1 MINERVA), definition of interlock system architecture*

Goal(s):

Development of reliability/availability model for the accelerator (extrapolation from 100 MeV to 600 MeV), development of tools for modeling (features in AvailSim4). Modeling for selected systems of interest (e.g. SSPAs). Assessment of reliability of accelerator hardware Definition of highly available machine interlock architecture (dynamic configuration for high availability)

Timeline: see Patricia timeline (4 years)

CERN support for this project is (0 = nice,, 5 = crucial): 4

Collaboration proposal

Benefits for MYRRHA:

- Access to CERN tools for reliability modelling (AvailSim4)
- Access to CERN expertise in reliability for Accelerators and Accelerator Systems
- Use of CERN computing infrastructure
- Setting up a system for fault tracking for MINERVA (inspired by AFT)
- Access to CERN expertise on Machine Interlocks

MYRRHA contribution:

- *Financing of 1 fellow at CERN*

MYRRHA technical contact: D. Vandeplassche

Benefits for CERN:

- *Development of AvailSim4, including new features*
- *Modeling of the availability of SPS SSPAs*
- *Reliability modelling of specific accelerator systems, also useful for present or future CERN use*
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CERN contribution:

- *Supervision of 1 fellow (2 years)*
- *10% FTE staff (J. Uythoven, A. Apollonio, E. Montesinos)?*
- *CERN computing infrastructure (order of 0.5 M*core*h)*

CERN technical contact: J. Uythoven, A. Apollonio