WHAT'S NEW

GPS – πM3 AREA

μSR Facility 2015

Actually in 2015 almost everything is new as the complete instrument has been rebuilt.
The most important changes are:

1. The full detector set has been redesigned. This has been possible with the use of SiPMs (Silicon Photo-Multipliers, i.e. APDs) instead of the standard photo-multipliers. This change has allowed us to significantly increase the solid angle covered by the detectors. This is especially useful when performing Transverse-Field experiment for which now a Right and a Left detector are available.

   In between the cryostats of Port 1 and Port 2, one finds now a Mobile detector which is added either to the Right detector (when using Port 1) or to the Left detector (when using Port 2).

   The use of these SiPMs has lead to a significant increase of the time-resolution of the whole instrument, which is now about 160 ps. During tests, frequencies as high as 1840 MHz could be detected.

   An additional improvement is that the deadtime region just after t_0 could also be quite reduced.

2. Another important change affects the main experimental magnet WED.
   A new coil set has been ordered and installed. This means that the highest available field is back to the situation of 2011. For the future, we are in the process to develop a new power supply (foreseen for the beamtime 2017) which will allow us to take advantage of the full field capacity of the coils (estimated to about 8 kG).

3. The directory structure of the data files has been slightly changed in order to save the raw "mdu" files also in the AFS directory. These files are saved in the TDC resolution (i.e. about 100 ps) and contained the full set of detectors prior grouping.
   The usual "bin" data files are still accessible in the directory:
   `/afs/psi/project/bulkmusr/data/gps/`
   or in the directory:
   `/afs/psi.ch/project/bulkmusr/data/gps/tdc/`
   As before, these directories contain only the 250 last data files (as symbolik links). The complete data files set is accessible in the directory:
   `/afs/psi/project/bulkmusr/data/gps/d2015/tdc/`
   Similarly, for the past years the data are accessible in the directories:
   `/afs/psi/project/bulkmusr/data/gps/dYYYY/tdc/`, where YYYY represents the year.
   In addition a directory:
   `/afs/psi/project/bulkmusr/data/gps/dYYYY/tdc/mdu/` is now present containing the mdu-files.