

# Minutes of Kick-off Meeting "MATS Slow Control System"

7 Dec 2006, 14:00-15:30, GSI

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## Related Documents

1. Annex 3.7 of NuSTAR MoU
2. TDRReport for the Design, Construction, Commissioning and Operation of MATS

## Project Definition

The aim of this project is to establish the slow control system for MATS. The slow control system comprises the control of instruments necessary to tune and conduct the experimental procedure of

1. ion traps,
2. transfer between traps,
3. a "simple" data acquisition for
  - a. MultiChannelScaler (like SR430),
  - b. Pico-Amperemeters, and
  - c. FT-ICR (transient recorder), and
4. basic on-line analysis required for operation, similar to SHIPTRAP or ISOLTRAP.

The slow control system does *not* take care of

1. extended experimental techniques like
  - a. acquisition of X-ray spectra (EBIT),
  - b. in-trap spectroscopy (nuclear spectroscopy),
2. safety (protection of machine and personnel).

In the case of safety, it might however be possible to contact EE/KS (Uwe Thiemer). The following is not yet clear.

1. The NUSTAR gas cell and the beam-line up to the switchyard of MATS/LASPEC will be provided by NUSTAR together with a slow control system. The interface to that control system needs to be defined.
2. Is the control system of the EBIT provided by Heidelberg? In that case, just an interface to that control system needs to be developed.
3. What about the vacuum system?

Within this project the slow control system is to set up and commissioned. The decisive test of the control system will be the first beam time. The project is terminated when MATS goes into operation. Further operation and maintenance of the control system will be the responsibility of MATS.

## Contributions and Responsibilities

EE/KS contributes one person, Dietrich Beck, for a time period of about 4 years, starting in around 2009. During that time, Dietrich Beck will work about 25%, about 2000 hours, for this project. In case the aim of the project can not be reached within this time, the involvement of EE/KS needs to be discussed again.

MATS contributes the hardware and people for implementing the control system. According to the Annex 3.7 des NuSTAR MoU, about 54000,- Euro are foreseen for PCs and PC hardware (PXI-Chassis, Profibus-, RS485, GPIB, TransientRecorder-Cards, ...) and about four FTE will be contributed by the collaboration partners of MATS for implementing the control system.

In 2006, the WTI division has requested the GSI and FAIR experiments, to formulate their future requirements towards the WTI. MATS has responded by requesting support in terms of software and hardware development. The involvement of Dietrich Beck in MATS is a contribution of the EE division, covering only part of the request by MATS. The question of further support remains open, until the future situation of man-power available within the EE department becomes more clear.

Dietrich Beck takes care of the technical coordination of the project as well as supervision of up to four PostDocs or PhD students implementing the control system. A dedicated working group will be set-up within the MATS collaboration. The project management, in terms of organizing finances, personnel, and relationship to NUSTAR, is taken care of by the spokesperson (Klaus Blaum) or the project manager (presently Frank Herfurth).

## Appendix

Table 1: Rough estimate of time required for EE/KS (DB). It is assumed that DB will work for about four years and supervises about four PostDocs or PhD students.

Task	amount	time [hrs]	sum [hrs]
weekly meetings	4 yrs * 46 weeks * 1.5 hrs	276	276
collaboration meetings & workshops	4 yrs * 1 weeks * 43 hrs	172	448
paper work	4 yrs * 46 weeks * 1 hrs	184	632
documentation and know-how transfer	(4 + 2) weeks * 43 hrs	258	890
supervision of students, code review, ...	4 pers * 4 weeks * 43 hrs	688	1578
"effective work"	rest	422	2000

Tabelle 2: Rough estimate of the working time of a PostDoc or PhD student that will help for about one man year with implementing the control system.

Task	amount	time [hrs]	sum [hrs]
weekly meetings	1 yrs * 46 weeks * 1.5 hrs	69	69
collab. meetings & workshops	1 yrs * 1 weeks * 43 hrs	43	112
paper work	1 yrs * 46 weeks * 1 hrs	46	158
learning period	4 weeks * 43 hours	172	330
documentation and know-how transfer	(12 + 1) weeks * 43 hrs	559	889
"effective work"	rest	1111	2000

Table 3: Rough planning of the time required to set up the MATS slow control system (without EE/KS, DB). The numbers given here require previous knowledge as well as concentrated work.

Task	amount	time [hrs]	sum [hrs]
8 instrument drivers and classes	one "effective year"	1111	1111
FTICR add-ons	one "effective year"	1111	2222
application layer plus GUIs	one "effective year"	1111	3333
debugging and commissioning	one "effective year"	1111	4444
reserve	rest	0	4444