ISOLDE scientific coordinator's report

ISCC meeting, November 3, 2008

A. Herlert, CERN PH-IS

Running period 2008

Status of INTC shifts

Status of ISOLDE experiments

Accelerator schedule 2008

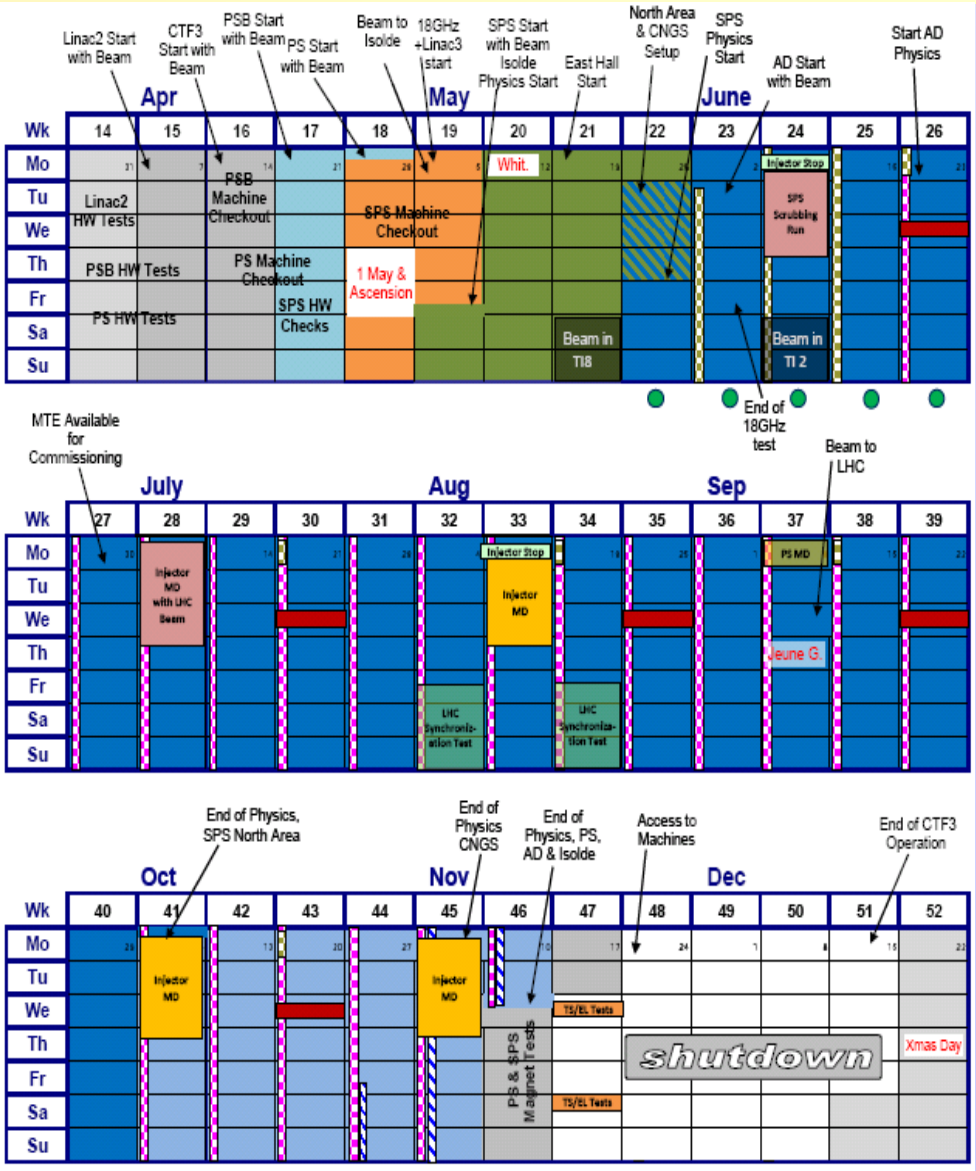
Approved by CERN Research Board November 28, 2007 (V4.1)

ISOLDE dates:

protons from PSB May 5
physics start ISOLDE May 9
protons stop November 12
(i.e. 27 weeks for physics)

Stop of ISOLDE machines Dec 5

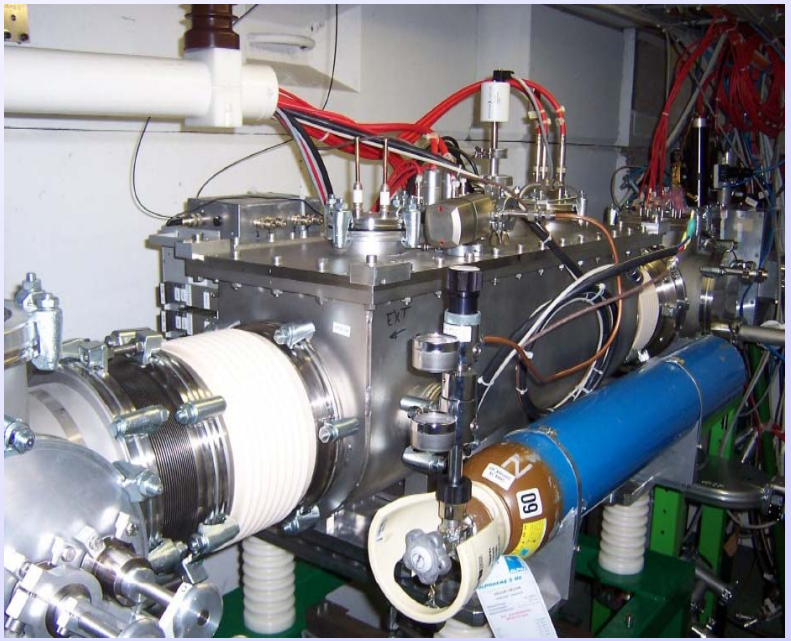
Stop of cooling water: Dec 17



ISOLDE beam requests 2008

- Limits in key resources
  - RILIS (installation of new solid state lasers, max 2000 h operation)
  - UC_x targets (about 10 new units maximum)
- Schedule:
  - 470 RIB shifts left after 2007 for approved experiments
  - 231 RIB shifts from new proposals and addenda at February INTC meeting 2008
    - in total 701 RIB shifts for 2008
    - 120 additional RIB shifts from May INTC meeting not taken into account
  - 551 RIB shifts requested
    - compare to 480 RIB shifts requested in 2007 with 407 scheduled shifts
    - requested RILIS shifts: 337 --> more than 2700 h operation
    - requested RIB shifts with UC target: 410 (together with RILIS: 308)

ISCOOL and new tape station



- ISCOOL
  - maintenance during shutdown 2007/2008
  - test in off-line period April 2008
  - permanently installed in 2008
  - running in transmission and bunch mode
  - Added additional setup and development time for 2008 schedule
- New tape station (IHPC Strasbourg):
  - Installation planned for June 2008 but delayed
  - Has been installed at LA2 beam line in September 2008
  - try to make first on-line test end of the 2008 running period

ISOLDE schedule 2008 ("final")

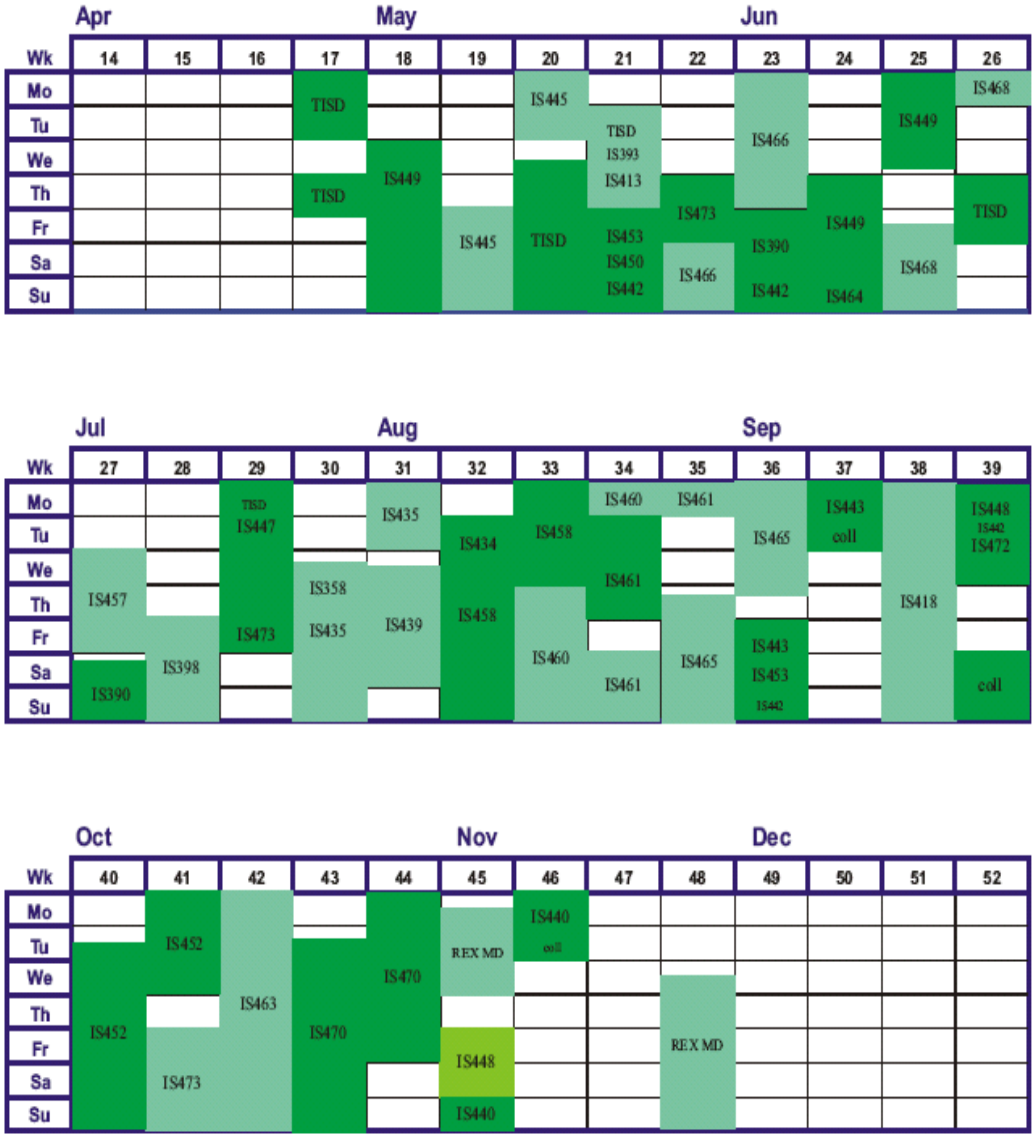
ISOLDE dates 2008:

2 weeks off-line period
protons started May 5
physics started May 9
protons stop Nov. 12

→ 27 weeks for physics

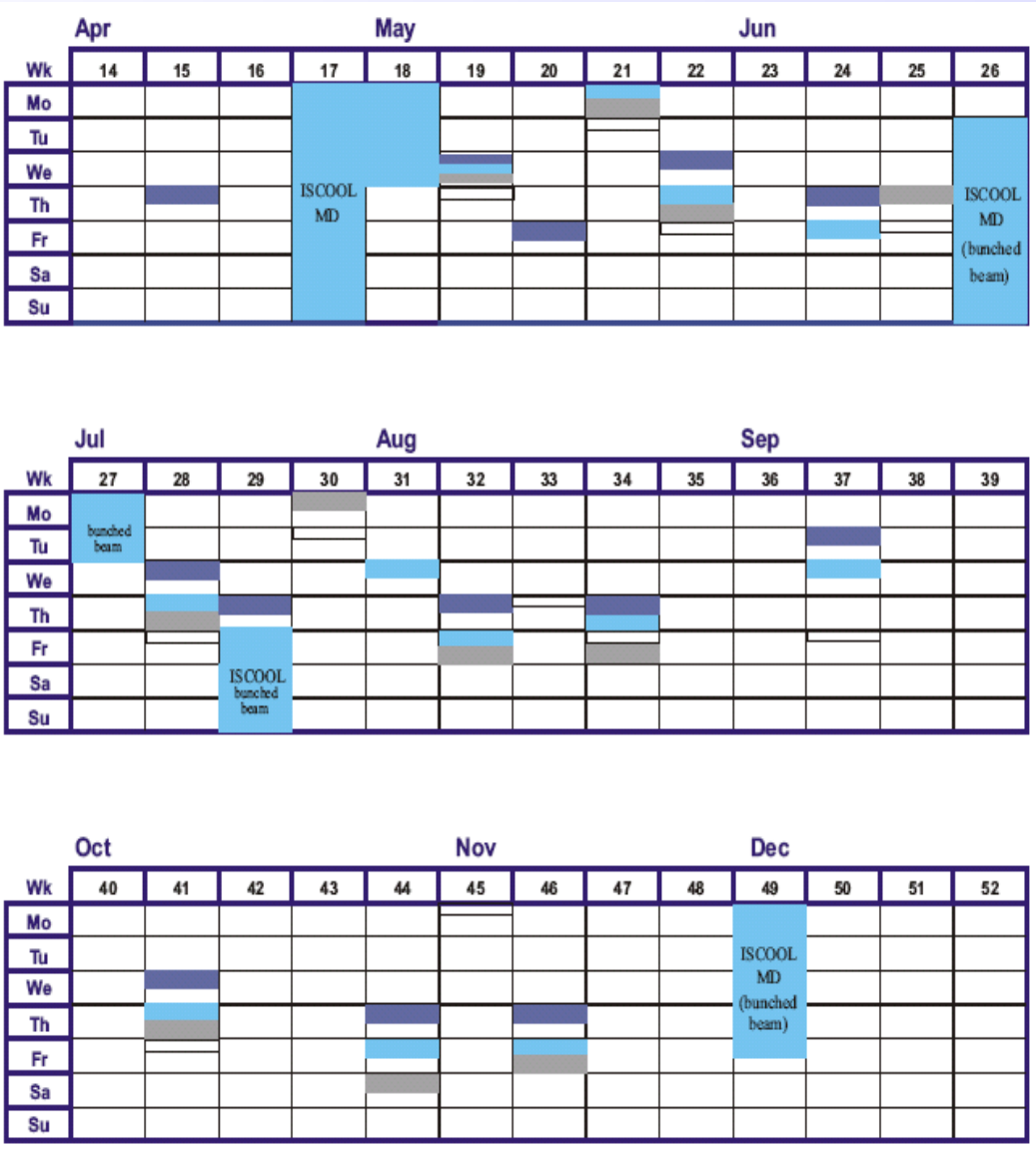
Scheduled:

- 31 IS experiments (out of 46 requested)
- 24 target units (4 old units)
- 12 UC_x + 1 ThO (2 old UC units)



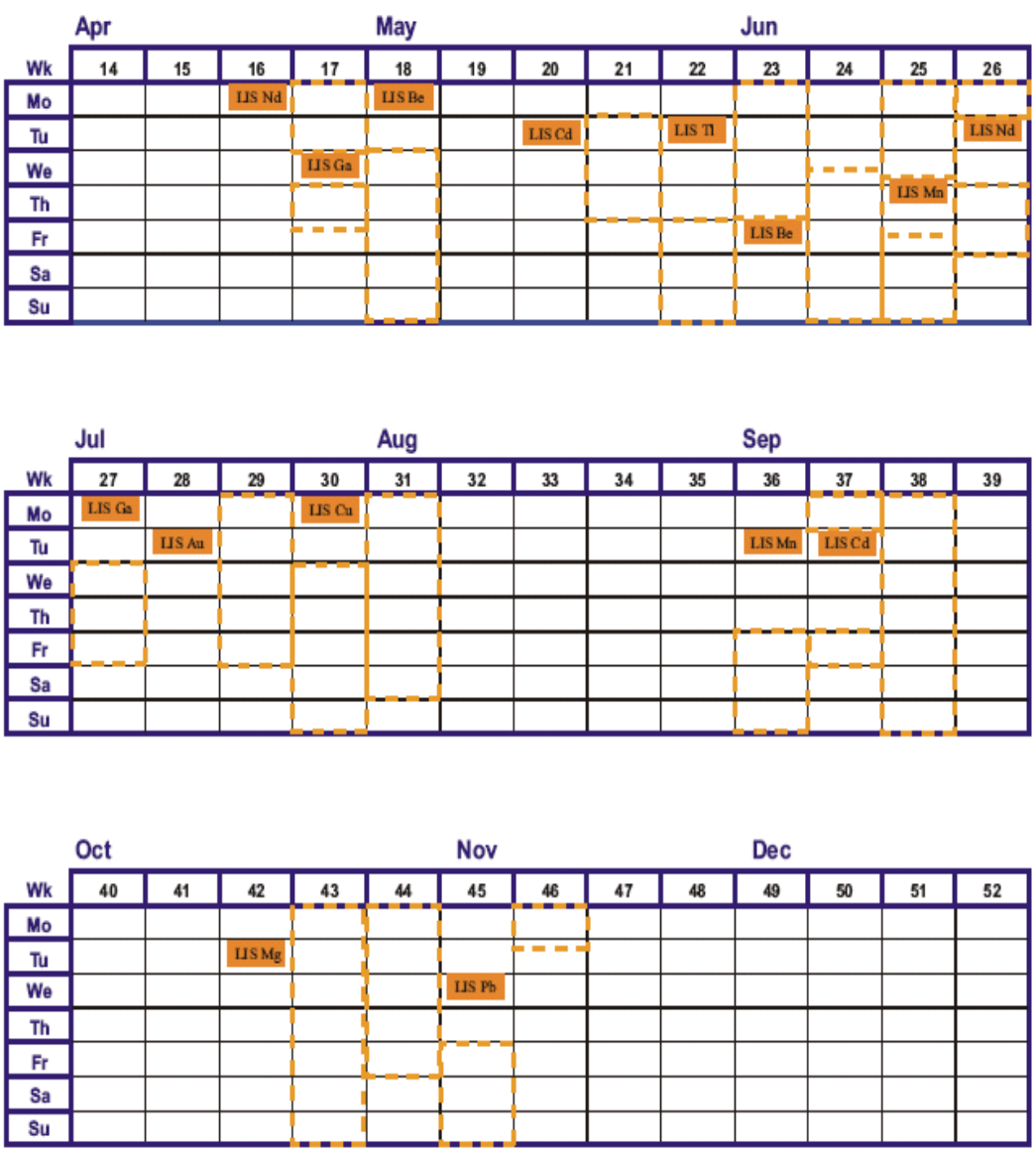
ISCOOL setup and development

- added extra setup time (not needed next year?)
- dedicated MD periods for beam development (off line and on-line)
- very good performance for laser spectroscopy experiments with bunched beams to COLLAPS (need further development)
- higher He gas consumption than expected (problem for future operation?)



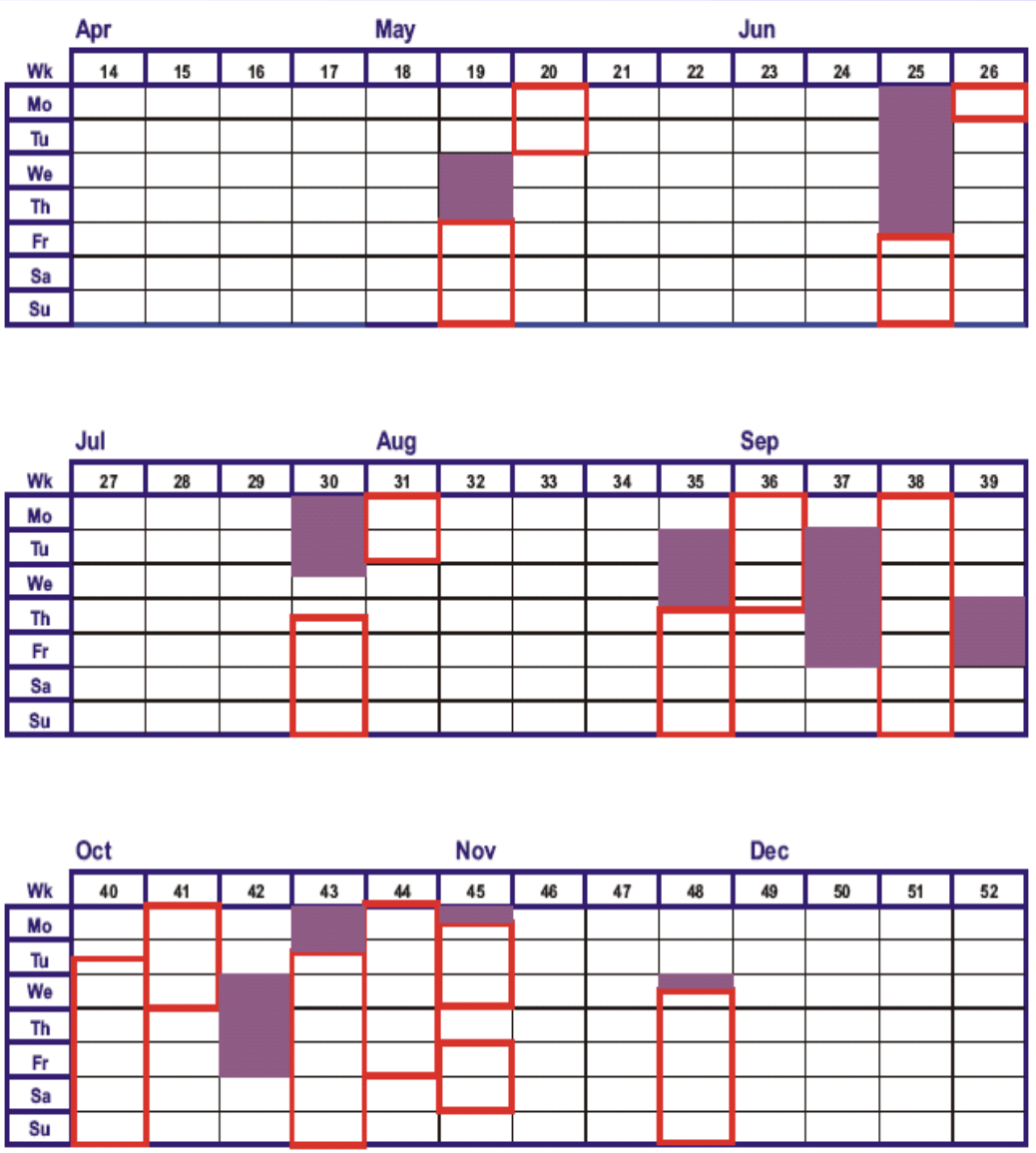
RILIS off-line and on-line shifts

- 15 runs (e.g. Au new beam)
- rough estimate more than 1800h of operation (without set up time - close or above limit of 2000h)
- beam development for new Nd:YAG pump laser and standard operation with Nd:YAG lasers
- Copper vapour lasers still needed for some beams



REX runs in 2008

- 7 on-line runs for IS experiments
- 1 on-line and 1 off-line development run for in-trap decay studies and mass-separation tests
- Successful runs for
  IS418: ^{100,102,104}Cd Coulex
  IS452: ^{184,186,188}Hg Coulex
  IS465: ^{202,204}Rn Coulex
  IS468: ^{61}Mn,Fe Coulex
  IS470: 2n transfer ^{30}Mg
  (^{3}H target !)



Running period 2008 ... successful

- Rough start in the beginning ...
  - unstable controls
  - limitation of proton beam intensity on GPS
  - vacuum system partly in manual mode
- ... improved during the running period
  - situation of controls improved ... vacuum still problematic
  - remaining broken diagnostics to be repaired during shutdown
  - intervention for ventilation system worked out: no limitation for GPS proton beam intensity
  - new RILIS pump lasers in operation - very good performance
  - good performance of targets - however, yield not in all cases suitable and also broken target units - in addition problems with HV (polluted extraction electrode?)
  - a lot of successful runs this year - detailed report at next meeting (and some results at ISOLDE workshop)

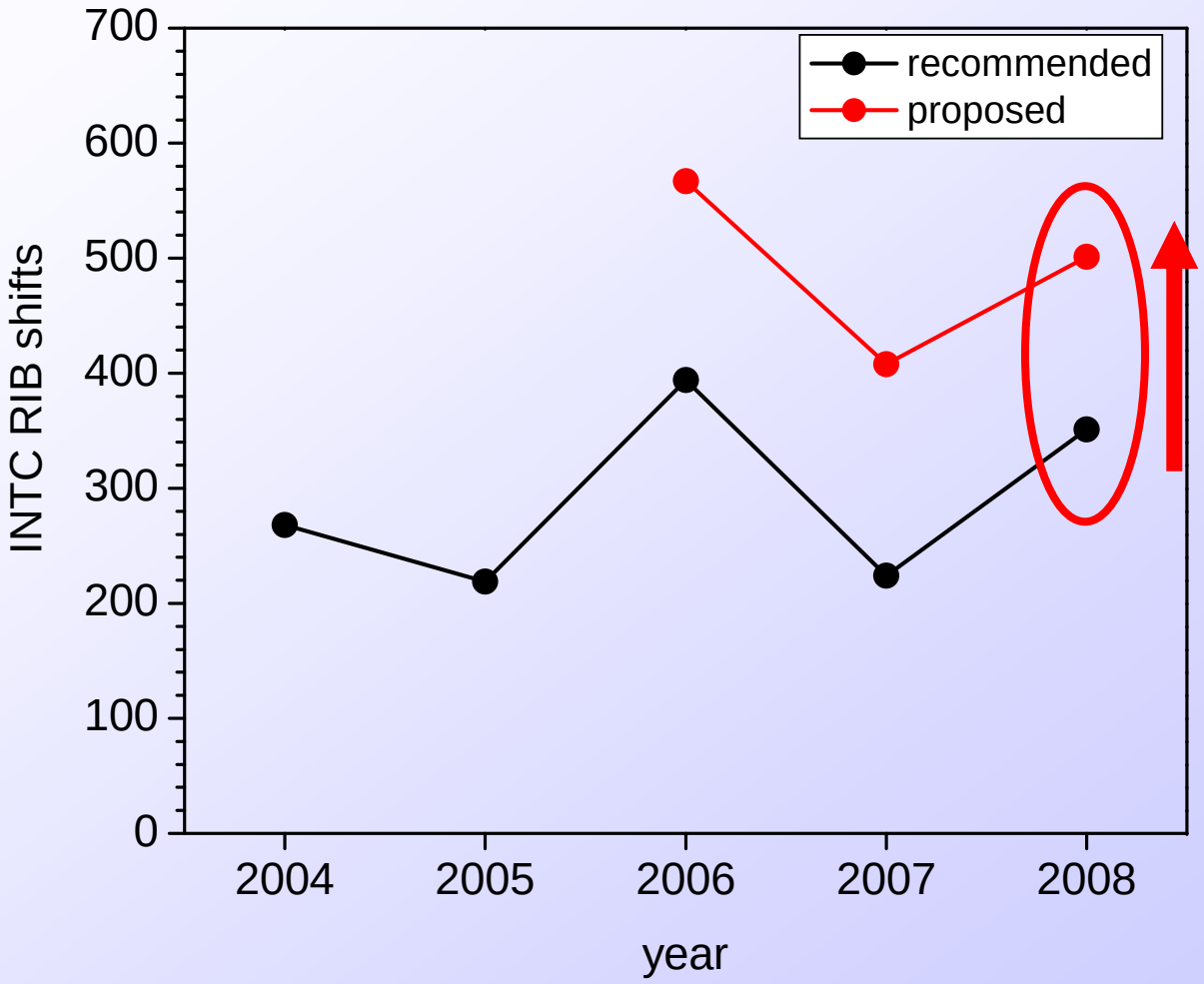
Status of INTC shifts

Situation in 2008 for scheduling...

- Active experiments 2007
  - 63 with 470 shifts in total
- INTC meeting February 2008 + Beam requests
  - 5 experiments closed
  - 9 new experiments and additional shifts for existing experiments
  - 67 active experiments with about 700 shifts

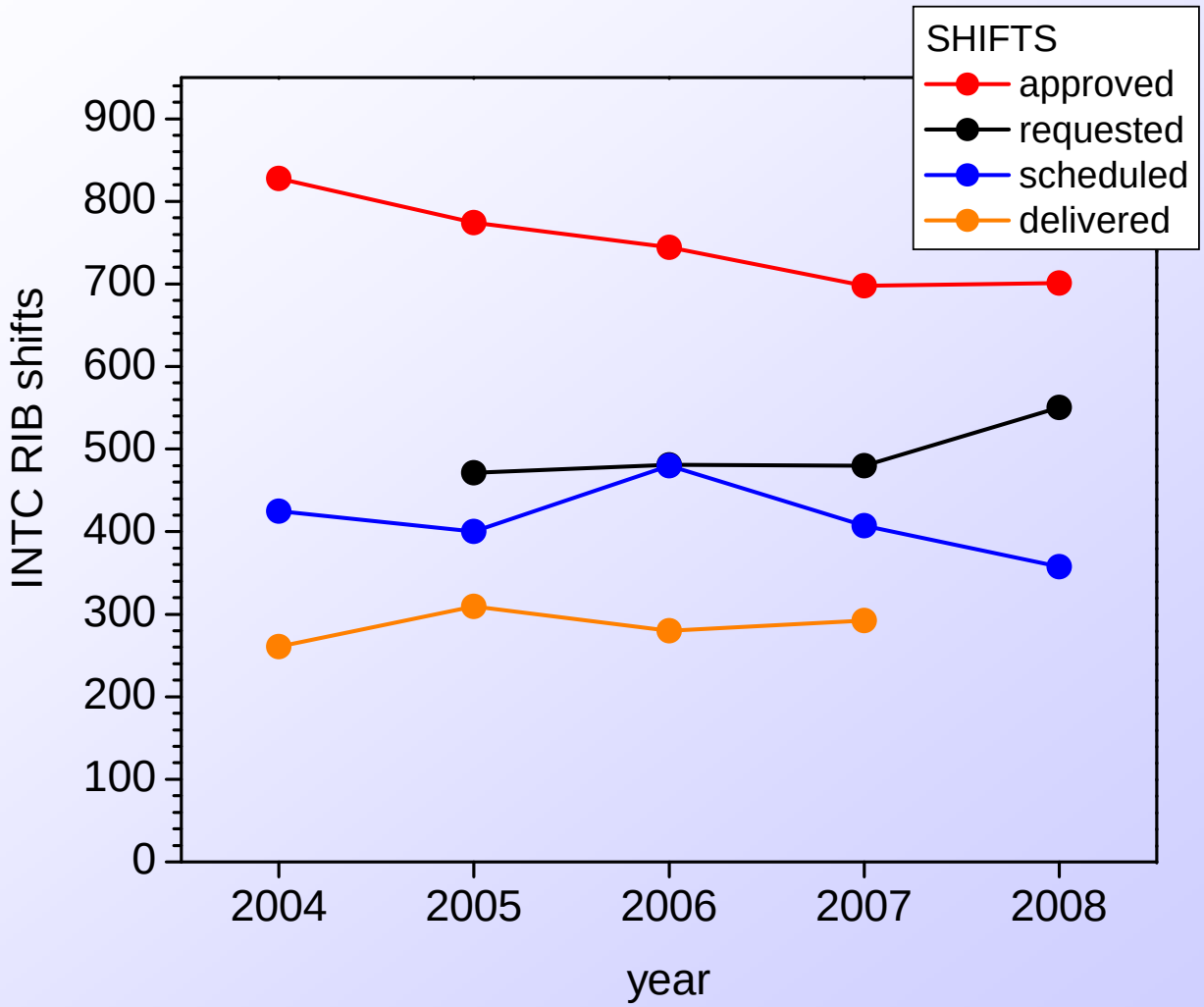
... is this healthy?

INTC shifts - evolution

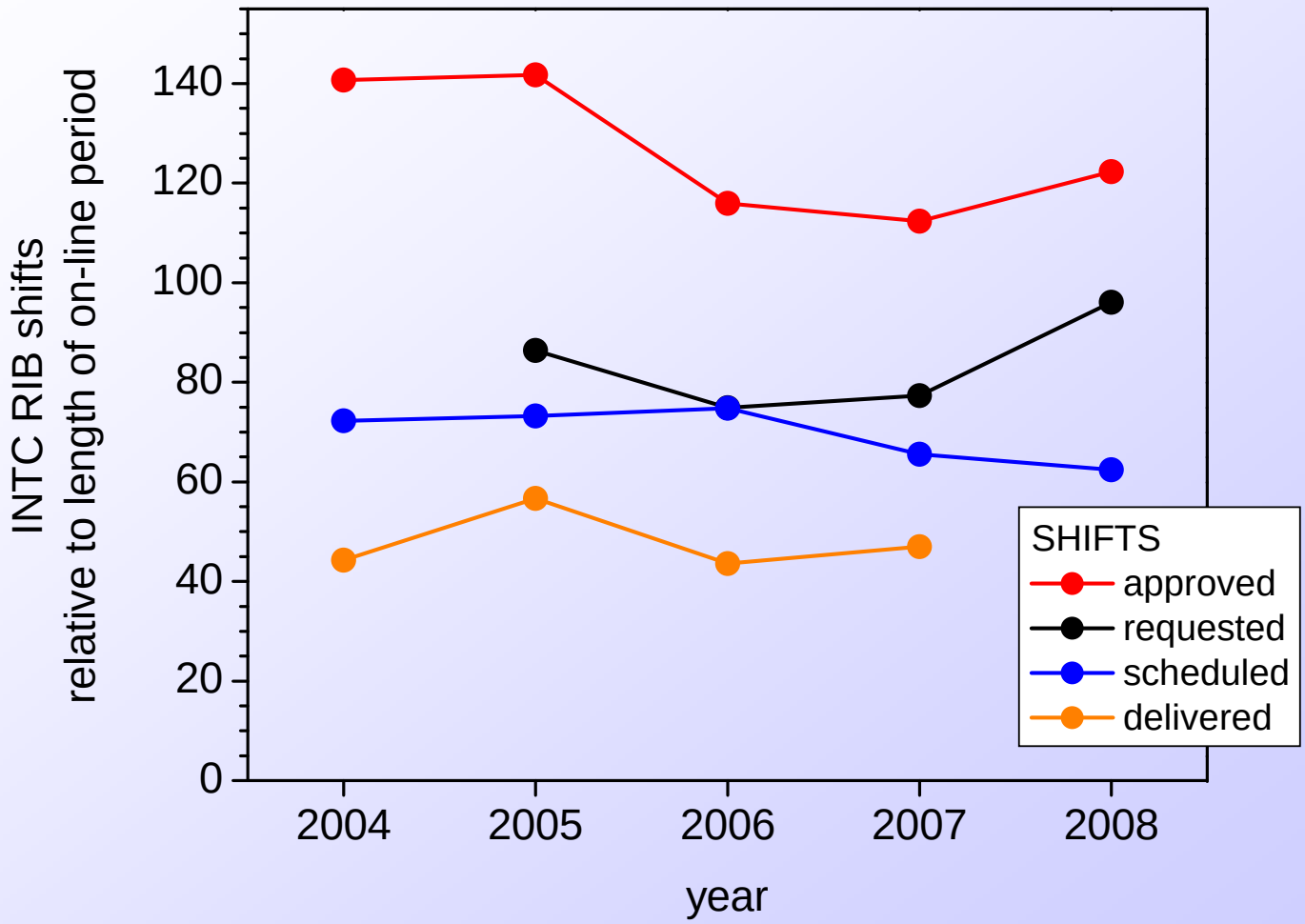


203 more shifts proposed in upcoming INTC meeting

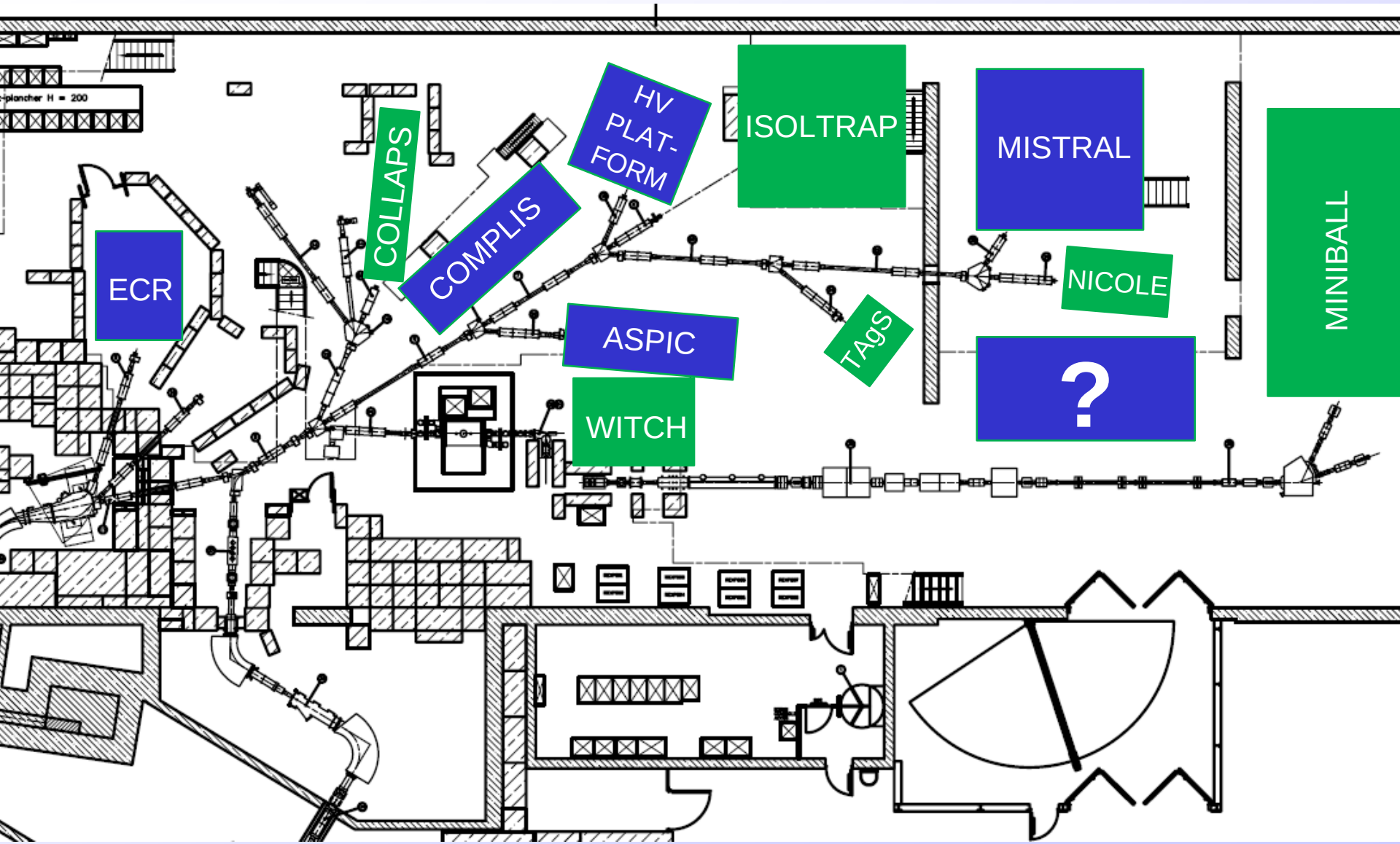
INTC shifts - evolution (II)



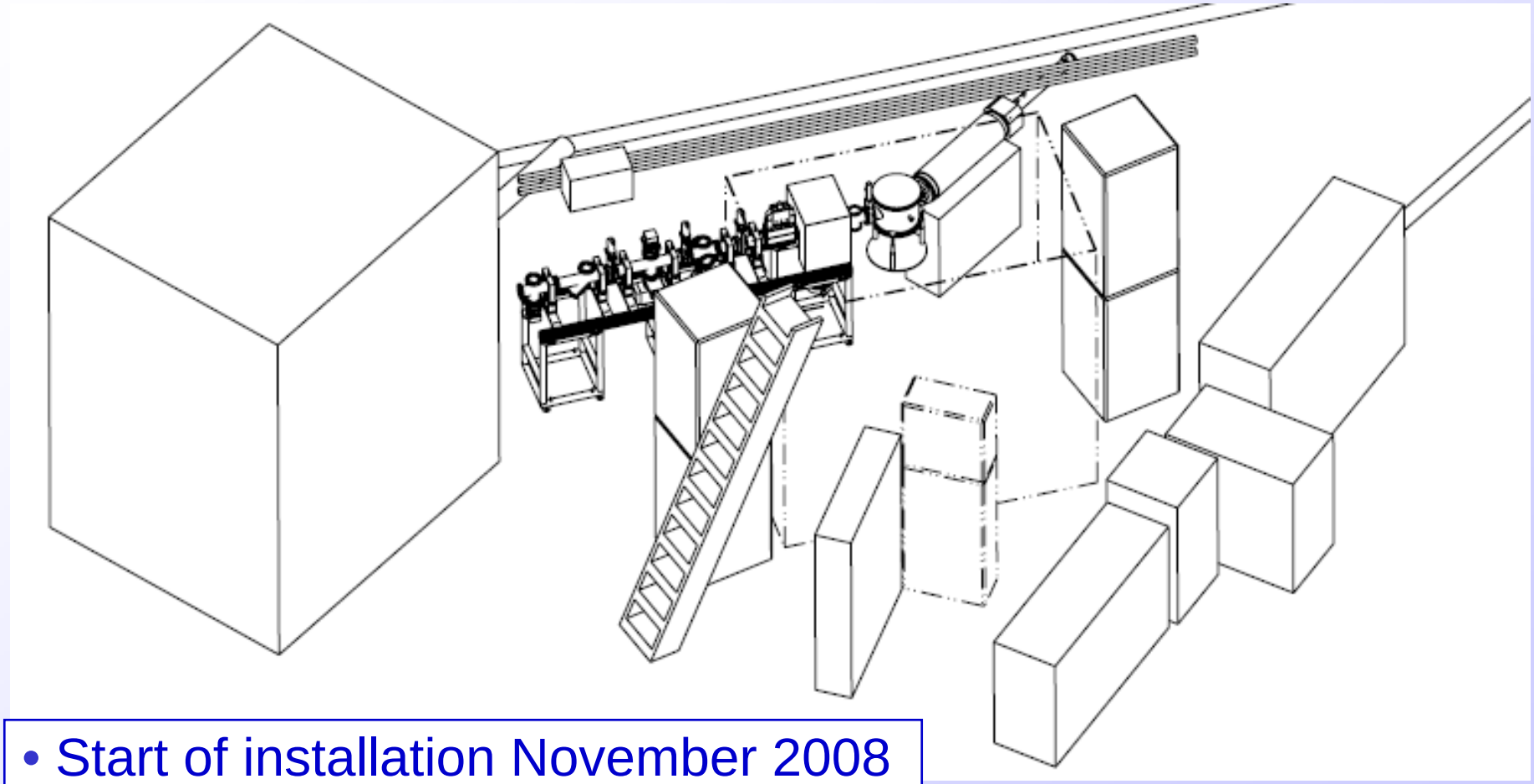
INTC shifts - evolution (III)



Follow up: Reallocation of floor space for experiments



New experiment CRIS (Flanagan et al.)

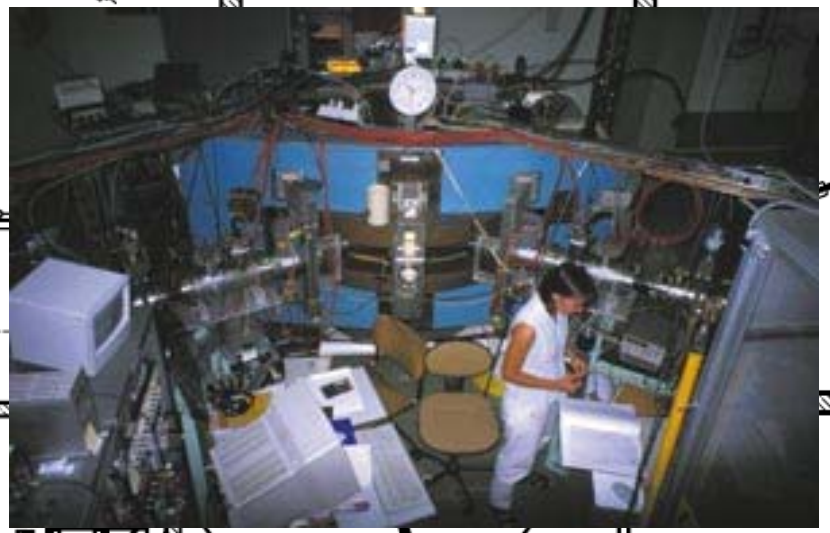


- Start of installation November 2008
- Initial safety discussion done

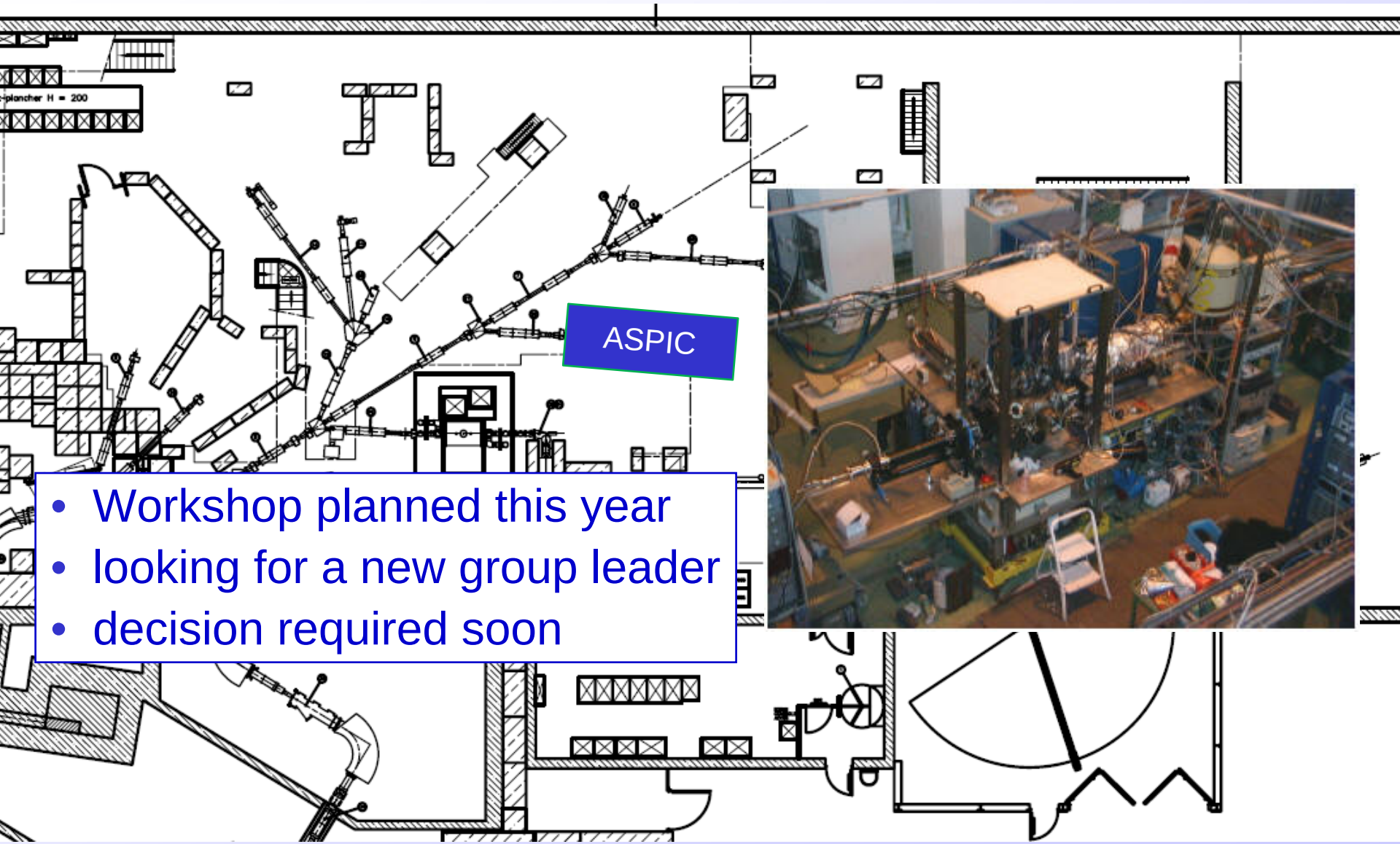
The MISTRAL experiment (D. Lunney)

- Experiment closed by users
- Setup to be removed latest during shutdown 2009/2010

MISTRAL

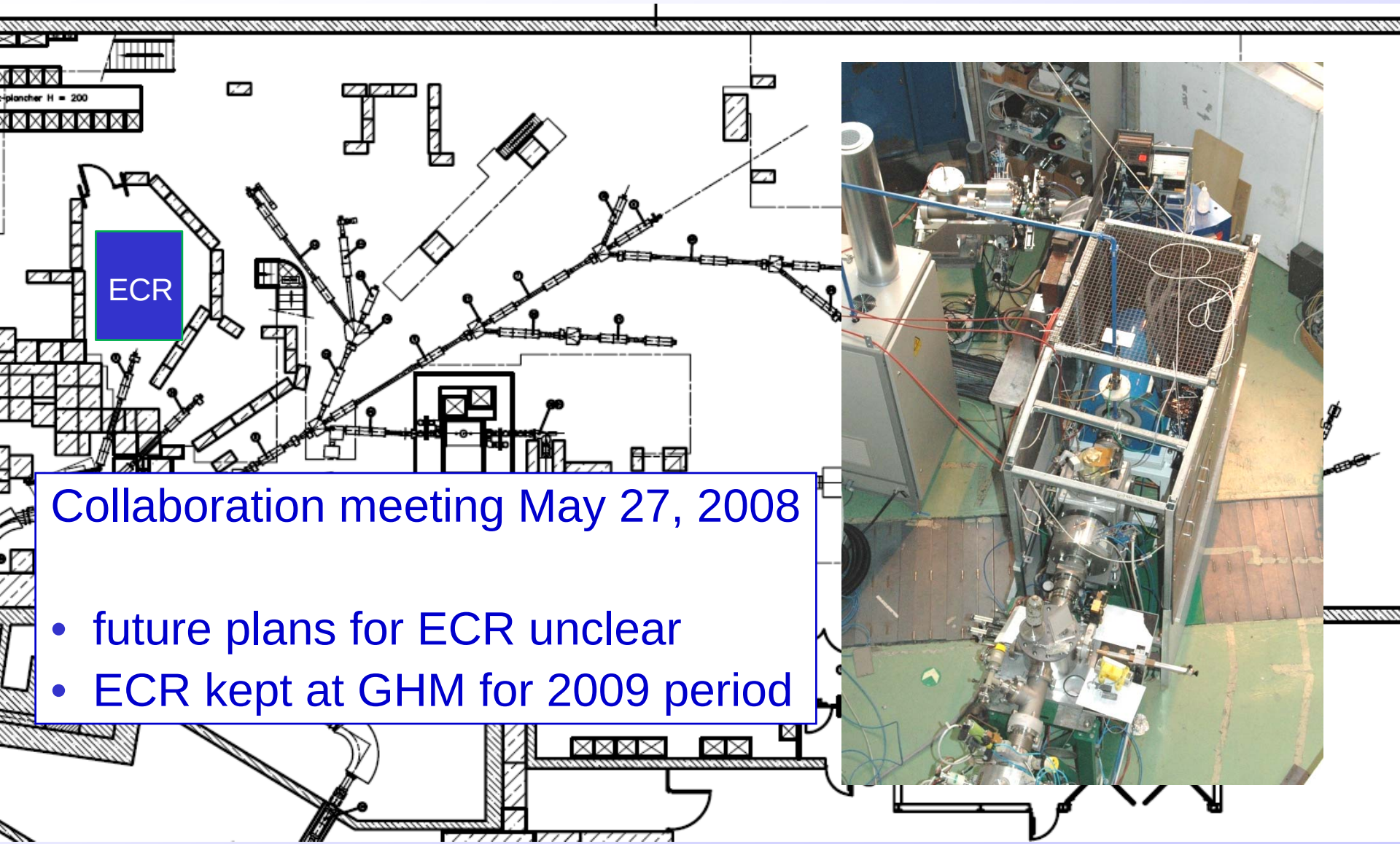


ASPIC setup (W.-D. Zeitz et al.)



- Workshop planned this year
- looking for a new group leader
- decision required soon

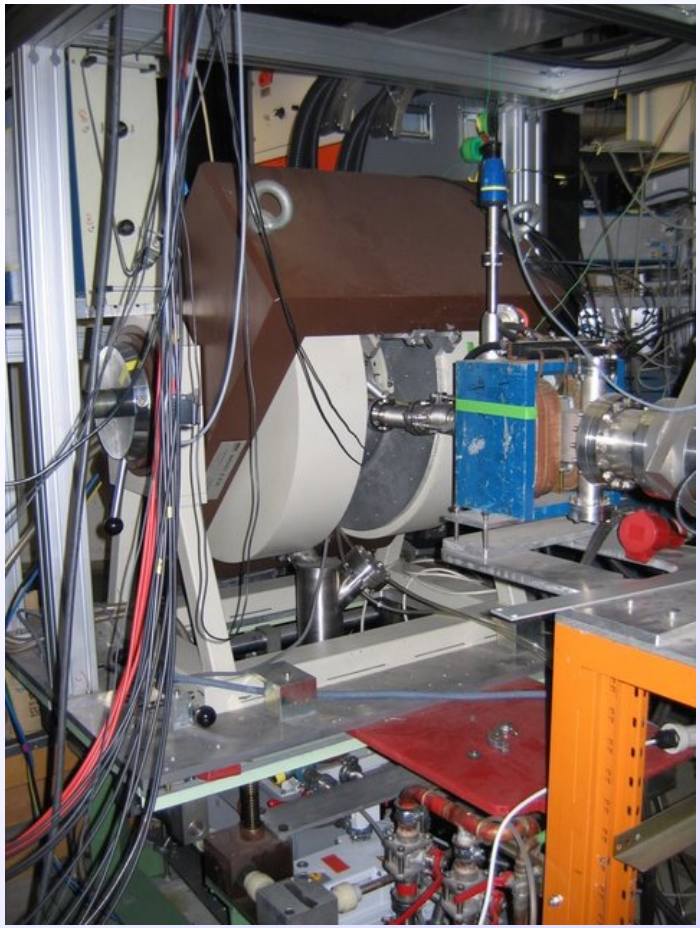
ECR charge breeder

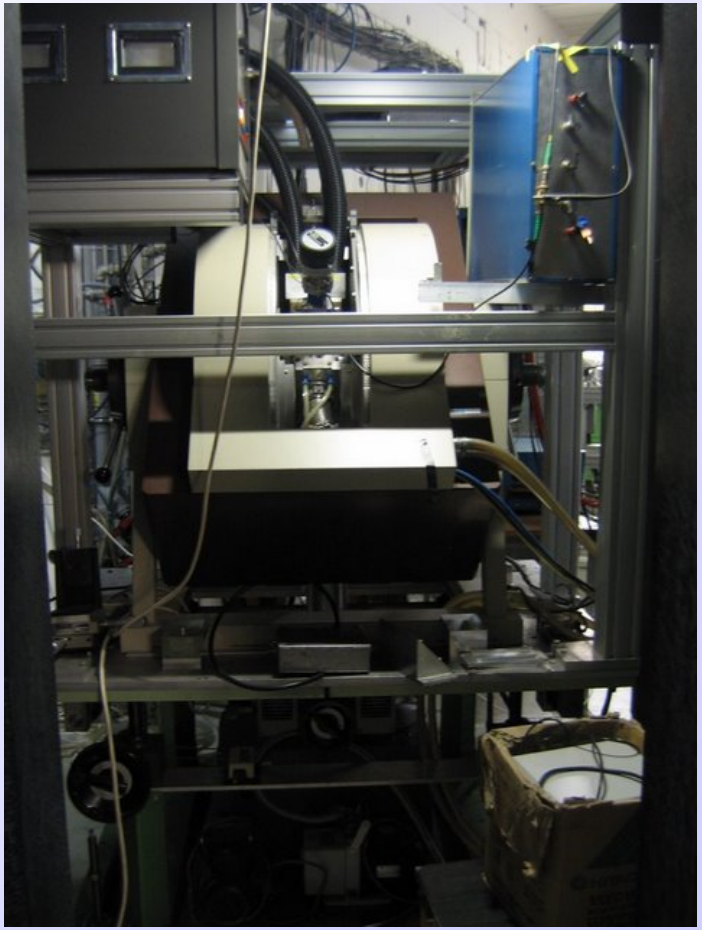


Collaboration meeting May 27, 2008

- future plans for ECR unclear
- ECR kept at GHM for 2009 period

New experimental setup: β NMR





Setup from HMI Berlin (W.-D. Zeitz) + tilted foil chamber

Installation ongoing behind REX-LINAC (support by P. Imielski)

Accelerator draft schedule 2009

preliminary
ISOLDE dates:

protons from PSB April 6
physics start ISOLDE April 9
protons stop November 14
(i.e. 31.5 weeks for physics
as compared to 27 weeks
in 2008)

Start of n_TOF: May 11

Short period for shutdown
maintenance - try to schedule
off-line physics and/or development