

# **ISOLDE scientific coordinator's report**

## **ISCC meeting, November 3, 2011**

**Schedule 2011 since last INTC**

**Statistics**

**Status of experiments and ISOLDE complex**

**Safety**

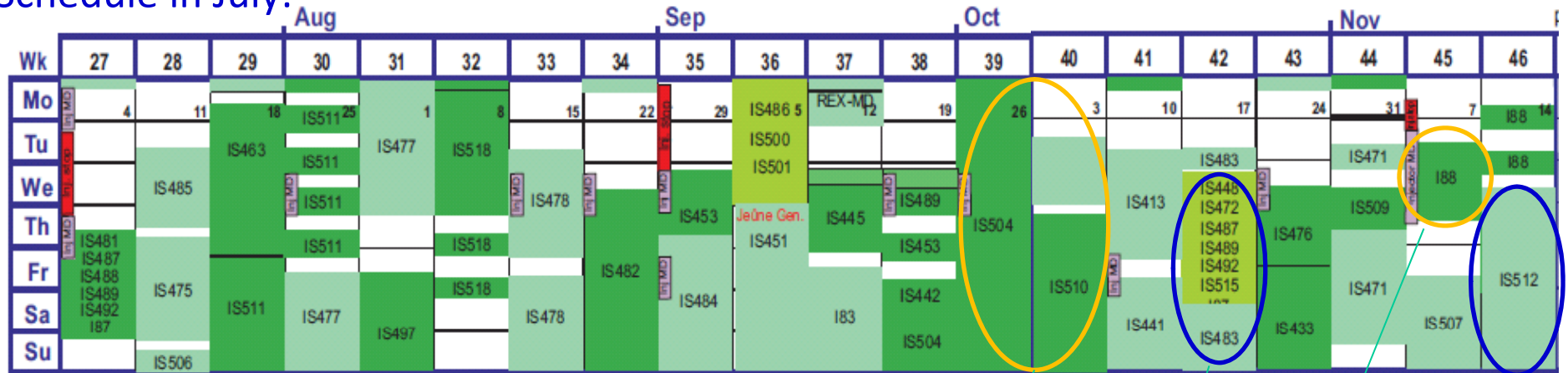
**Schedule 2012**

**Long shutdown**

Magdalena Kowalska, CERN PH-SME-IS



## Schedule in July:



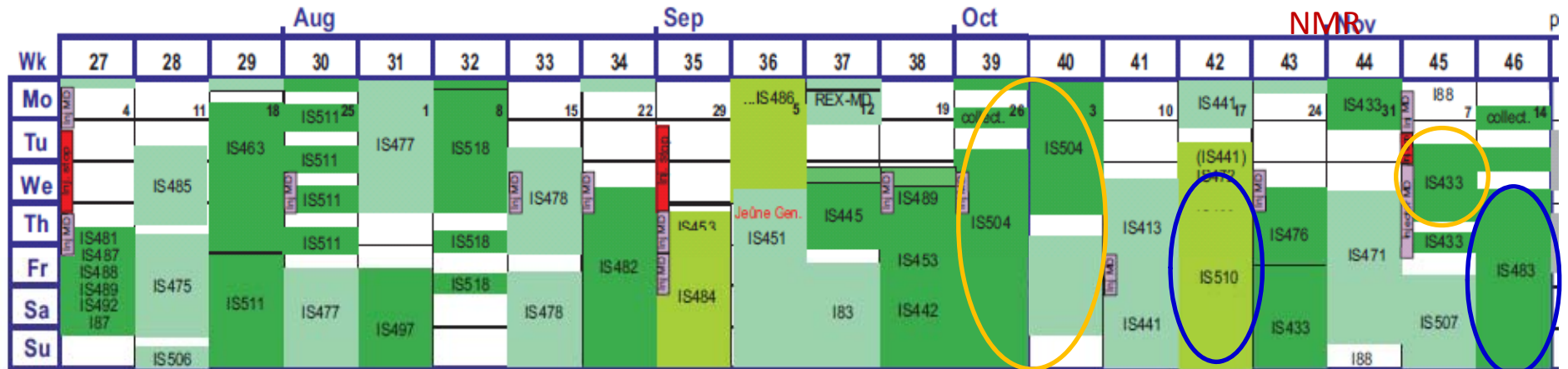
EBIS-cathode exchange

Zn T-REX moved to Zn g-factor time-slot

WITCH gets 1 more run instead of bio-NMRv

Zn g-factor replaces cancelled resonance scattering

## Schedule in November:



GPS
  HRS
  GPS+HRS

- **Successful physics:**
  - Solid-state and biophysics runs on Ag (*in spite of GPS target problem and old target with no Ag mass marker*)
  - E3 transitions in Ra and Rn with Miniball; Coulex on  $^{208}\text{Rn}$ ; Coulex on  $^{128}\text{Cd}$
  - In-source laser spectroscopy on n-deficient Tl isotopes
  - Laser spectroscopy on n-rich Cd isotopes
  - Deformation of  $^{98}\text{Sr}$  using MINIBALL and in-trap decay in REX-TRAP
  - ISOLTRAP: first-time mass and  $t_{1/2}$  of  $^{82}\text{Zn}$  using multi-reflectometer, masses of n-rich Fr isotopes
  - Solid-state runs on Mn isotopes (*despite of proton sharing with HRS & GLM defl. problem*)
  - Solid-state runs (mostly EC) on Ni: *much longer than planned due to REX problems*
  - Transfer reactions on Ni got almost the planned statistics: *in spite of 5-day delay due to EBIS-cathode change* (thanks to support teams quick repair and agreeing to a rearrange the schedule)
  - Fast-timing studies on  $^{78-82}\text{Zn}$
  - Hg for bio- and solid-state physics: 10 experiments partly ran out of samples (*proton sharing with HRS*)
  - T-REX run for  $^{72}\text{Zn}$ : transfer and Coulex spectra taken (*proton sharing with Hg beamtime for GPS*)

- TISD runs: C beams from HfO+HELICON – fast release but efficiency to be improved; Ir/Ta/W+RILIS on Dy&Yb for rare earths: promising for Yb and Lu, but not Dy;

- **Partly successful physics:**

Coulex on  $^{96}\text{Kr}$ : should be able to conclude on  $E(2+)$  despite HRS magnet problems and low yield

Tape-station at ISOLTRAP: new isomer energies for n-def Tl after no n-rich Tl seen

Tilted-foils LOI: spectra on  $^{27}\text{Na}$  after problems with delivering  $^8\text{Li}$  beam

Laser-spectroscopy on  $^{51}\text{K}$  at  $N=32$

- **Unsuccessful physics:**

REX 9-gap problems: Coulex on  $^{72}\text{Kr}$  (yield was very good)

Not enough beam: short-lived  $^{30}\text{Na}$  for Coulex

$^{31}\text{Ar}$  at LA1: problems with HRS robot followed by a target problem

**Big THANKS to the ISOLDE technical group  
for the support and commitment  
to deliver the best possible beam**

## **INTC shifts in 2011:**

930 Remaining

657.5 Requested

440 Scheduled

320-360 Delivered successfully (very rough estimate); vs 265 in 2010

## **Present INTC:**

243 Shifts requested (proposals)

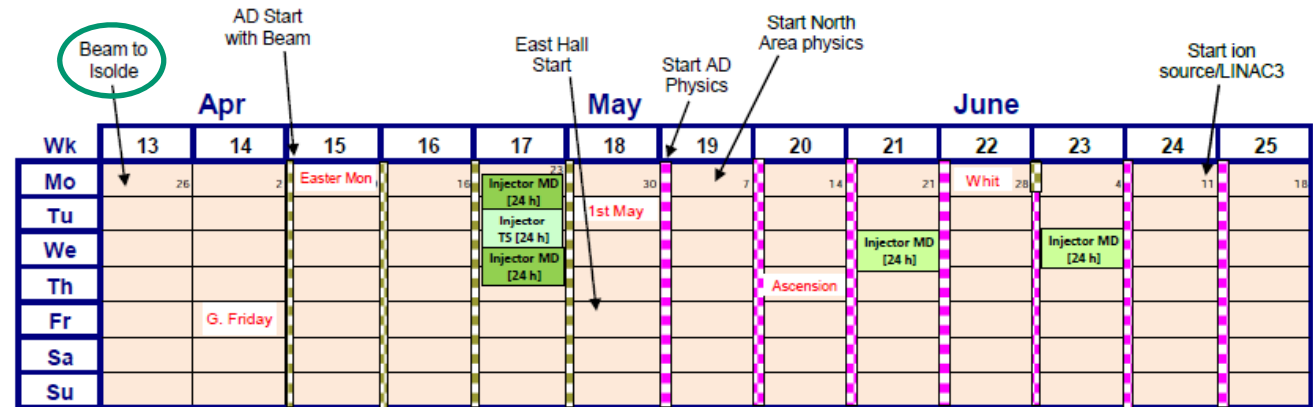
## **INTC shifts remaining for 2012: (rough estimate)**

**810-850 Shifts**

## Beginning of 2012 fixed:

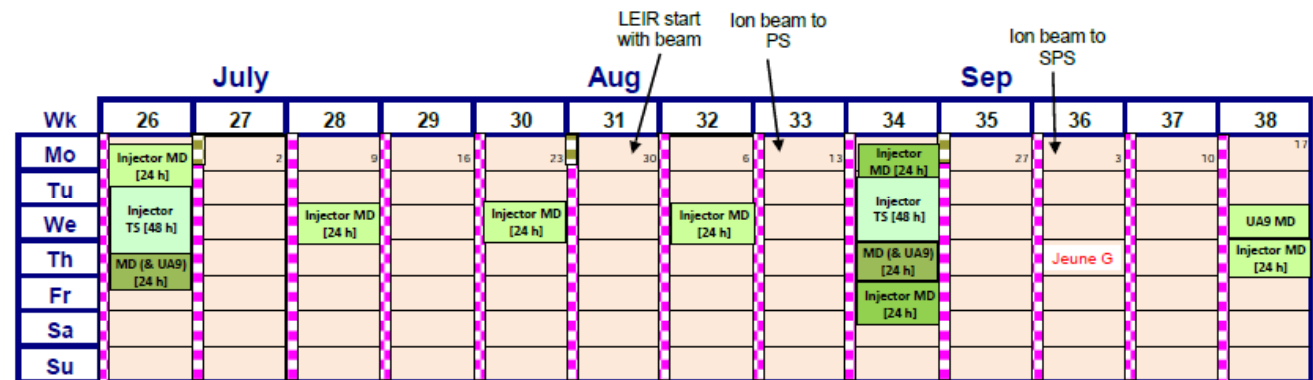
ISOLDE physics starts on April 2 (1 month earlier than in 2010&11)

End under discussion



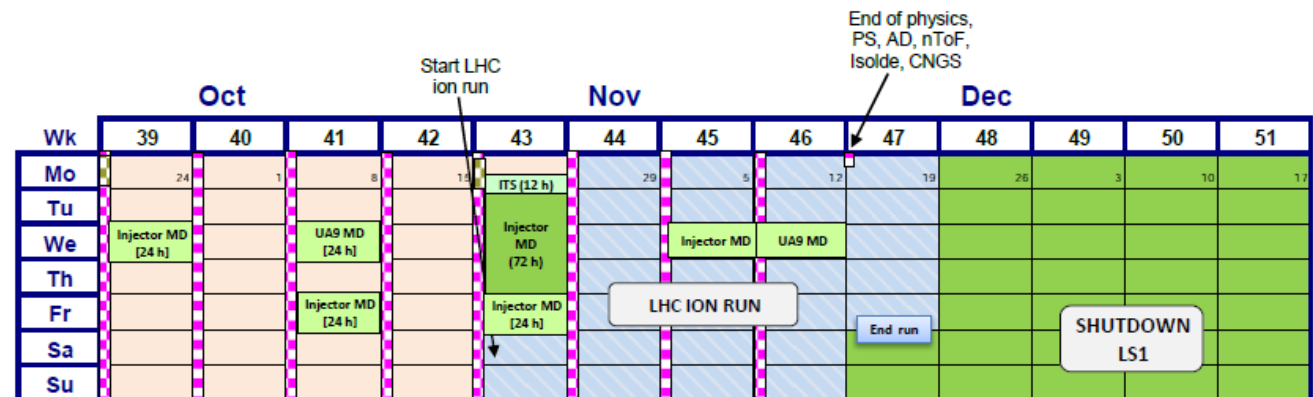
## ISOLDE schedule:

In 3 parts, to allow for more flexibility in case of problems

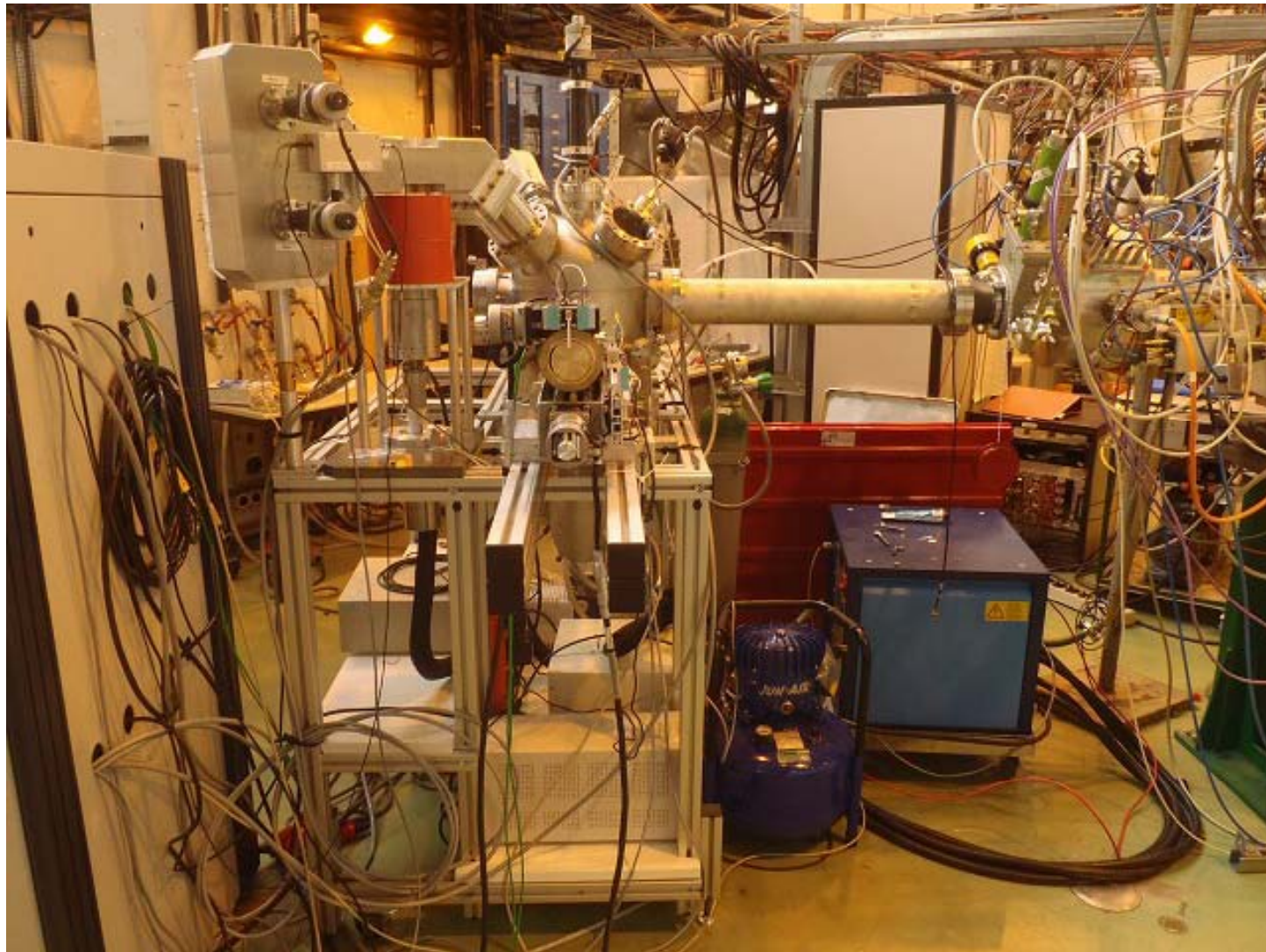


## Hostel rooms:

10 rooms booked permanently for ISOLDE (reservation held until 2 weeks after the schedule is released)



- New diffusion chamber tested with stable and radioactive beam at LA1 => ready for physics next year

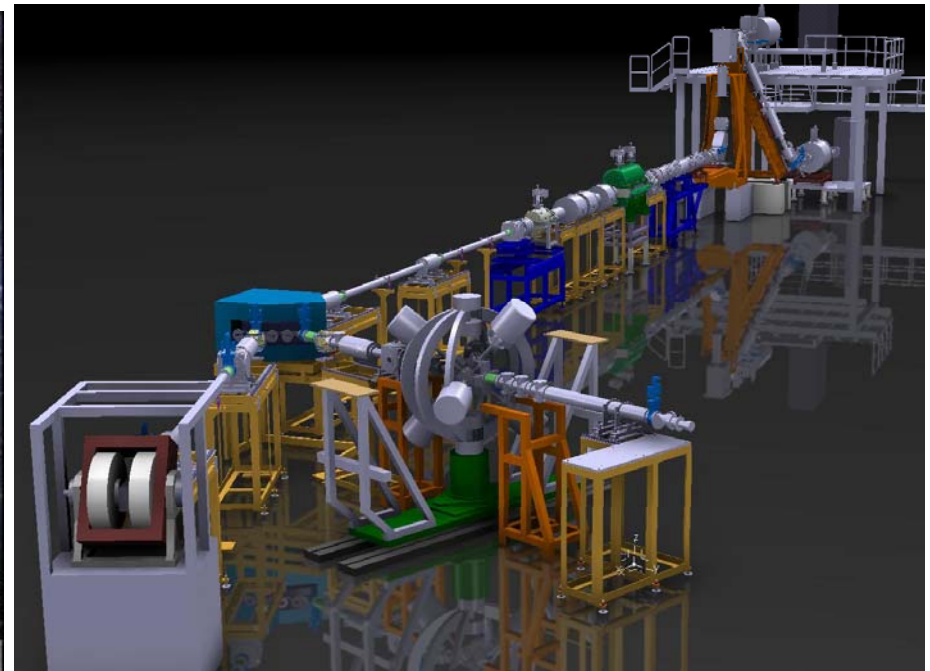
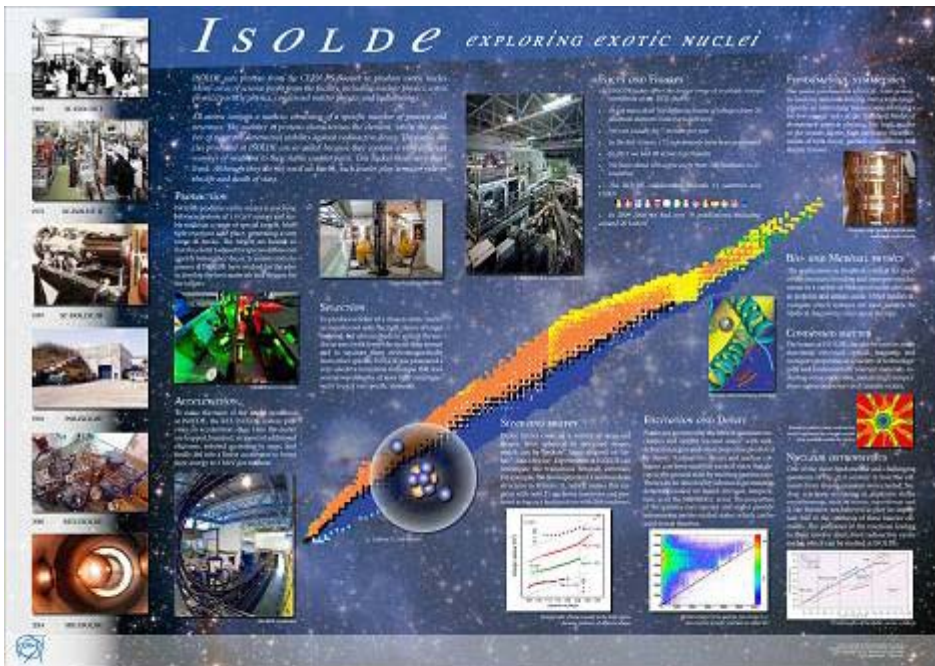




- Beta-NMR tilted-foils setup ready and already took radioactive beam
- NICOLE investigating their vacuum problem: Orsay and Japanese groups presently at ISOLDE. The group will present new strategy to the ISCC in February.
- New PAC machines and rearranged space in bldg 115 allowed smooth beam sharing by many groups
- GHM implantation chamber ready to be used – parallel GLM-GHM collections again possible
- WITCH fully operational: took data last week; due to technical problems they will get another chance next week
- ISOLTRAP had a very good year (in spite of the February magnet quench)
- COLLAPS had also a good year
- MINIBALL transfer reactions with T-REX chamber successful



- New ISOLDE posters under preparation
- Up-to date 3D layout of the ISOLDE hall close to final
- Collaboration with CERN Hostel to find accommodation for all users in the summer
- Since September J. Thiboud can help experiments (mounting, machining, vacuum pumps)
- HIE-ISOLDE civil engineering started



- September cleanup of bldg 507 (light building): storage space to be rearranged during shutdown; cleanup and new chairs in DAQ room
- Upgrades to LA1 beamline: user FC read out in control room; new power sockets





## At ISOLDE:

- Weekly seminars
- Series of lectures by Rick Casten
- Series of lectures by Piet Van Duppen

## Outside CERN:

- Co-organisation of **Workshop on GEANT4 in Low-energy Physics**: M. Venhart, Slovakia
- Co-organisation of **ECT\* Workshop on Nuclear Structure via Ground State Properties**: M. Kowalska, Trento

## CERN articles on ISOLDE:

*CERN Courier*: ISOLDE explores the Island of Inversion -Sep11 (V51, #7)

*CERN Bulletin*:

Breaking the ground for HIE-ISOLDE – 26 Sep 2011

New researchers join HIE-ISOLDE - 23 May 2011

ISOLDE gets a new laser system - 18 Apr 2011

ISOLDE experiment explores new territory in nuclear fission - 17 Jan 2011

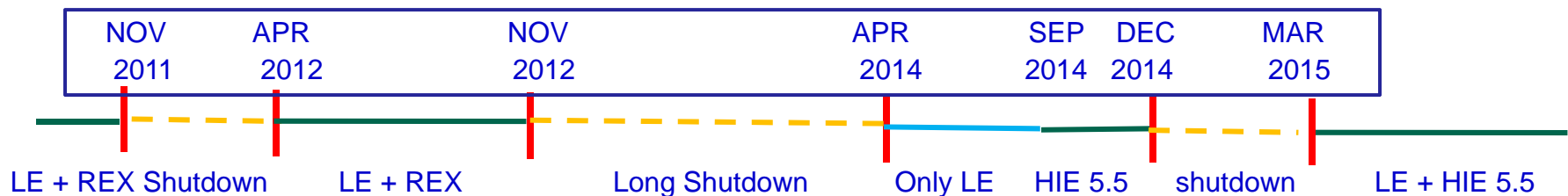
- Evaluation of safety files for fixed almost complete: improvement requests communicated to local responsables
- Improved traceability of implanted samples: Karl's database includes storage location and is available to RP personnel
- Extension of b. 115 and move of SSP lab from b.275 under way: funding still guaranteed, planned for this shutdown, final cost estimate pending
- Key cabinet operational

- Safety team suggests a safety audit of fixed installations: under discussion
- Safety team suggests to set up a web based safety course specific to ISOLDE hazards

- Problems with permanent dosimeters for some users who did not follow a safety course: web-based RP training and on-site training under discussion for 2012



- **Present baseline (not yet official):**  
 physics for everybody until December 2012  
 Injectors restart in April/May 2014  
 No Linac4 connection  
 To be decided at the beginning of 2012
- **ISOLDE offline physics:** only 2 weeks in 2012 due to work connected to HIE-ISOLDE in 2013
- **RCS (Rapid Cycling Synchrotron)** discussed instead of PSB upgrade. Has been officially abandoned.



- Two CERN students
    - Hans Tornqvist until Aug. 2012
    - Kara Lynch until Aug. 2013
  - Several students partially supported by the collaboration
  - Current fellows
    - Janne Pakarinen (Miniball) ends 12/2011
    - Deyan Yordanov (Collaps) ends 12/2011 (3 month extension requested)
    - Thomas Cocolios ends 07/2012
    - Jan Kurcewicz (ENSAR) starts 12/2011
  - Fellows Committee 15/11: Hope for at least 1 new fellow
  - Associate: Phil Walker until 03/2011 but will stay longer.
- Encourage request for May committee.

- Full report will be given in February
- No payment 2011 from
  - Denmark
  - Finland
  - Spain
  - Ireland
  - France
- No payment Norway 2009, 10,11
- No payment Greece ever!
- Additional contribution from Germany for HIE-ISOLDE (Maybe should count as Greek contribution...)
- In 2012 we expect India and possibly Korea to join.



- **TNA Number of beam hours promised -full contract 5200**
- **Number of beam hours 01/09/2010 - 31/ 08/2011 2826 (scheduled)**
- **Estimated number of Users - full contract 400**
- **Number of Users 01/09/2010 - 31/ 08/2011 153**
- **Estimated number of days - full contract 2800**
- **Number of days 01/09/2010 - 31/ 08/2011 870**
- **Estimated number of projects - full contract 60**
- **Number of projects 01/09/2010 - 31/ 08/2011 37**
- **Total amount for T&S - full contract 252 KE**
- **Amount for T&S 01/09/2010 - 31/ 08/2011 105 KE**
  
- **Julien Thiboud (Tech) 50% paid by ENSAR 09/2011 – 08/2013**
- **Jan Kurcewicz (Fel) 100% paid by ENSAT 12/2011 – 12/2013**
  
- **EURISOL-NET**
  - **Valencia Topical meeting 02/2011**
  - **CERN technical meeting 06/2011**
  - **EURISOL week 15-19/10/2012 in Lisbon.**
- **JRAs ACTILAB and PREMASS**

**Thank you**