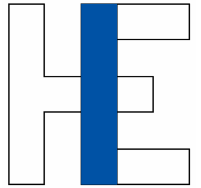


Status of the Design Study

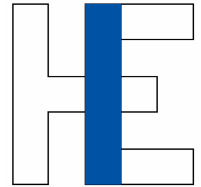
Richard Catherall EN-STI-RBS



Outline

- Introduction
- Project Breakdown Structure
- Target Area Upgrade: a change in the PBS
- ITN Call3 (Marie Curie Fellowship)
- Progress on drawings
- Fluka simulations : a step forward
- Timeline

Project Breakdown Structure



➤ Three tier structure used for PBS and drawings

➤ L – Layout

- T- target area
- X - experimental area
- J - Class A lab
 - S - Shielding
 - G - Geodesy and Survey
 - B - Beam Instrumentation
 - E - Electrical Power
 - C - Control
 - F – Fluids
 - T – Targets and Front ends
 - I - Injection and transfer lines
 - K - Civil engineering
 - H - Handling, mechanics, supports
 - M - Magnetic elements
 - P - Personnel safety and radiation protection
 - U - Ventilation and air conditioning
 - V - Vacuum equipments
 - A - Access system
 - Z - Electrostatic systems
 - D - Management
 - W - Waste disposal

➤ Examples of PBS

➤ LTS

➤ Layout, target area, shielding

➤ LTG

➤ Layout, target area, survey...etc, etc.

➤ Examples of drawing codes

➤ I S L _ _ _ _ _ 0 0 0 1

➤ I S L L T

➤ I S L ISOLDE

➤ L Layout

➤ T target area

➤ V Vacuum systems

➤ X Exhaust

➤ T Tanks

➤ 0001 number 1

➤ Target Code example

➤ I S L T F V _ _ 0 0 0 1

Project Breakdown Structure

5.0 Target Study

5.1 Target design

5.1.1 Target Material

5.1.2 Target Design

5.1.3 Target handling and storage

5.2 Front ends

5.2.1 HV and high current systems

5.2.2 Extraction optics

5.2.3 FE design

5.3 Beam diagnostics

6.0 target Area and Class-A lab Integration

6.1 Layout upgrade

6.2 Cooling and Ventilation

6.3 Electrical systems

6.4 Vacuum

6.5 Survey

6.6 Civil engineering

6.7LL controls

7.0 Injection and beam preparation

7.1 Beam line magnets

7.2 Off line separator

7.3 Separator areas

7.3.1 HRS magnet

7.3.2. RFQ cooler

7.3.3 Pre Separator

7.4 Experiment Hall

7.5 Beam lines

8.0 Safety

8.1 Radioprotection

8.1.1 Linac

8.1.2 Design study

8.2 Safety

8.3 Access system

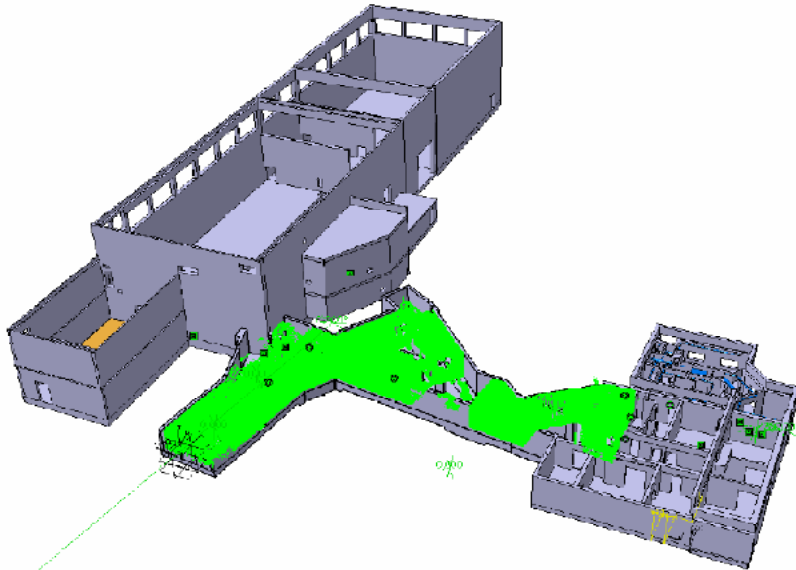
8.4 Fire detector

- Target area Upgrade Project
- 3.5 MCHF accorded by CERN management
- Starting in 2010
- Identified the urgent need to upgrade the target area.
- Will have an impact on the current PBS

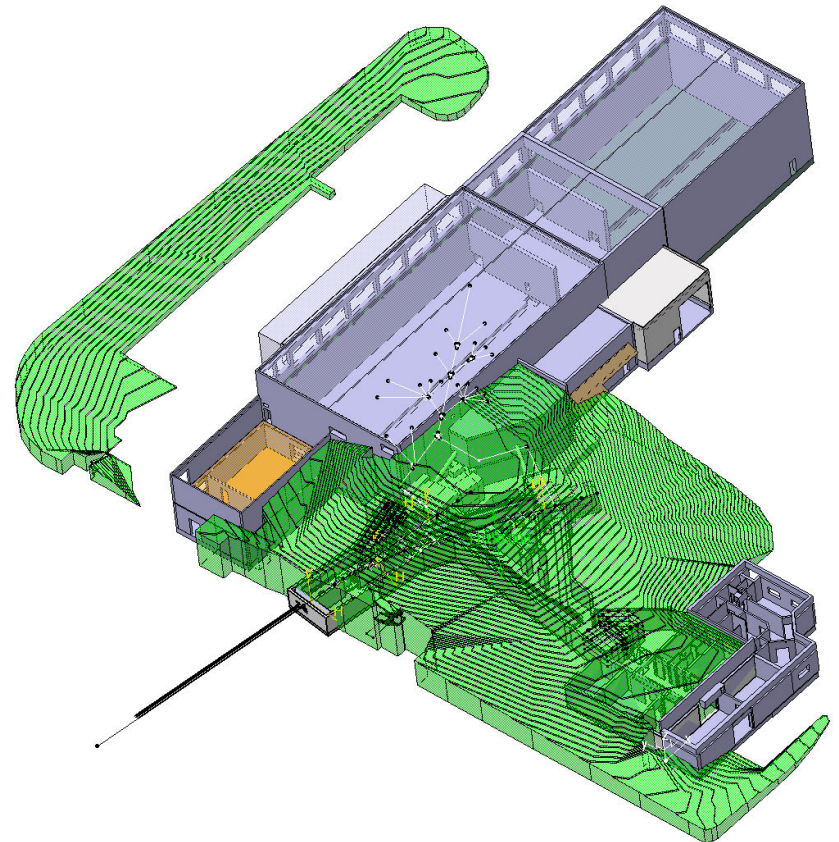
ITN Call3 (Marie Curie Fellowship)

	WP Holder	Fellows
• 5.0 Target Design (EN/STI)		
– 5.1.1 Target Material	T. Stora	1
– 5.1.2 Target Design	T. Stora/V. Vlachoudis	2
• 5.2 Front ends (TE/ABT & EN/STI)		
– 5.2.1 HV and high current systems	T. Fowler	1
– 5.2.2 Extraction optics &		
– 5.2.3 FE design	S. Marzari	1
• 6.0 target Area and Class-A lab Integration (EN/CV & TE/VSC & EN/STI)		
– 6.2 & 3.2 Cooling and Ventilation	S. Deleval	1
– 6.4 Vacuum	G. Vandoni	1
– 6.7 LL controls	A. Masi	1
• 7.0 Injection and beam preparation (EN/STI & BE/ABP)		
– 7.2 Off line separator &		
– 7.3.1 HRS magnet	T. Giles	1
– 7.3.2. RFQ cooler &		
– 7.3.3 Pre Separator	T. Giles	1
– 7.5 Beam Lines (REX-EBIS studies)	F. Wenander	1
• 8.0 Safety RP (DG/SCR)		
– 8.1.1 Linac		
– 8.1.2 Design study	T. Otto	2
	Total	13 / year for 3 years

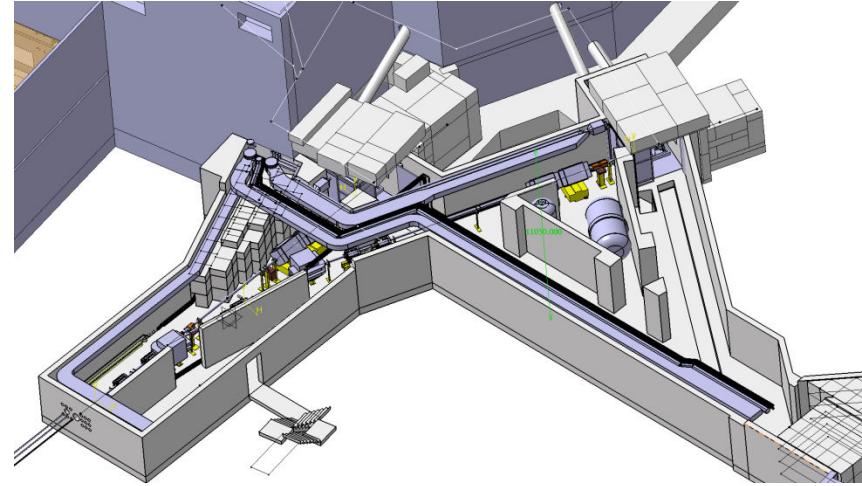
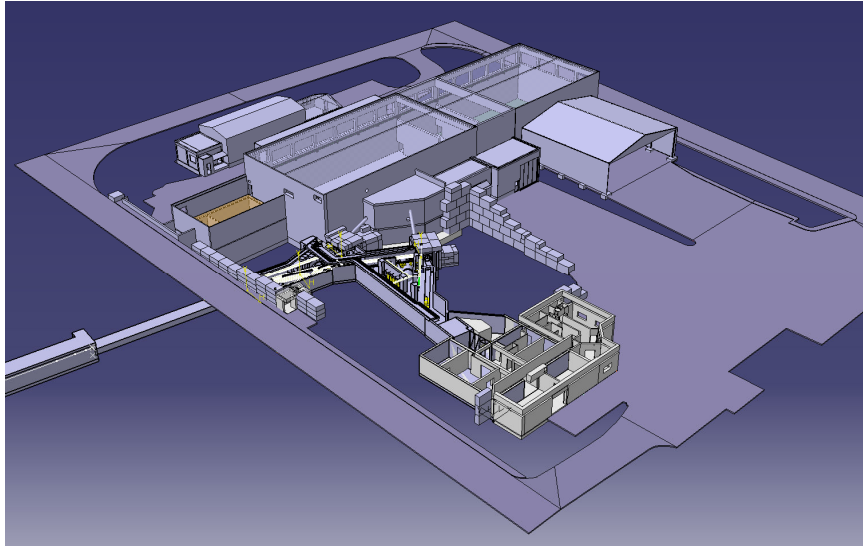
Drawings



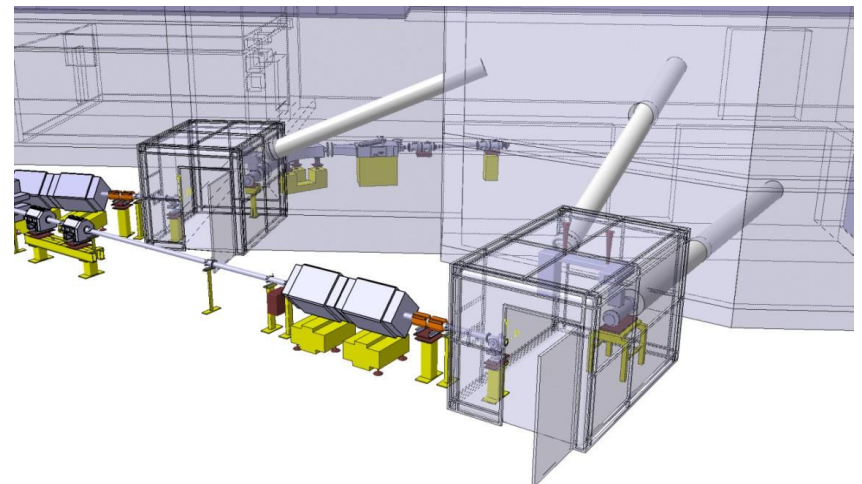
- A tremendous effort has been spent on improving the drawings of the ISOLDE facility throughout 2009
- Starting point for all future developments
- Catia models- CERN standards



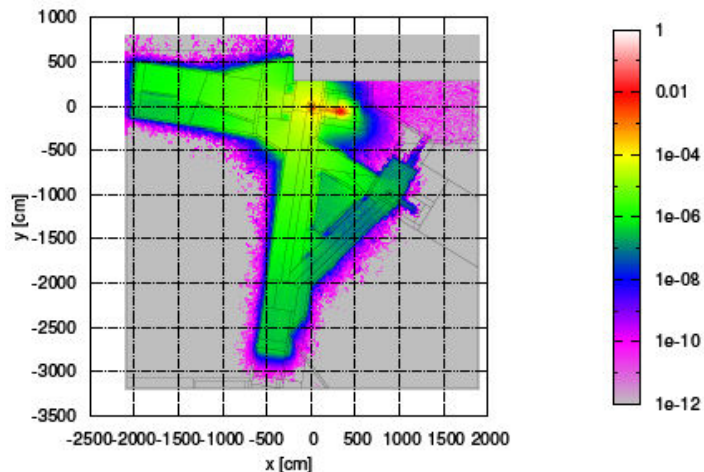
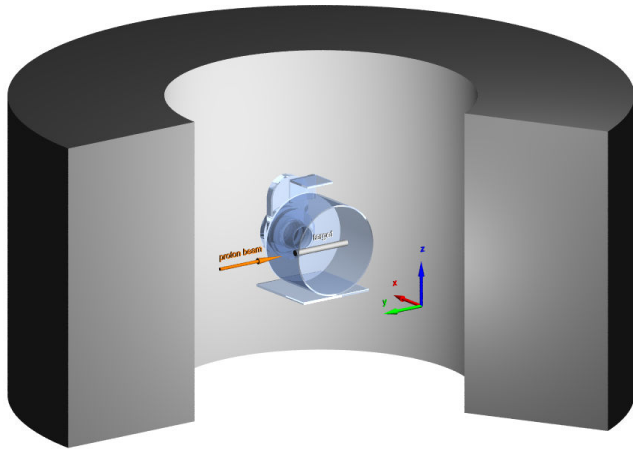
Drawings



- Derived from laser scan and photography – limited access
- Improved up-to-date detail
- Used for future projections with the HIE-Energy sub-project
- Improved geometries for Fluka by A. Leyko

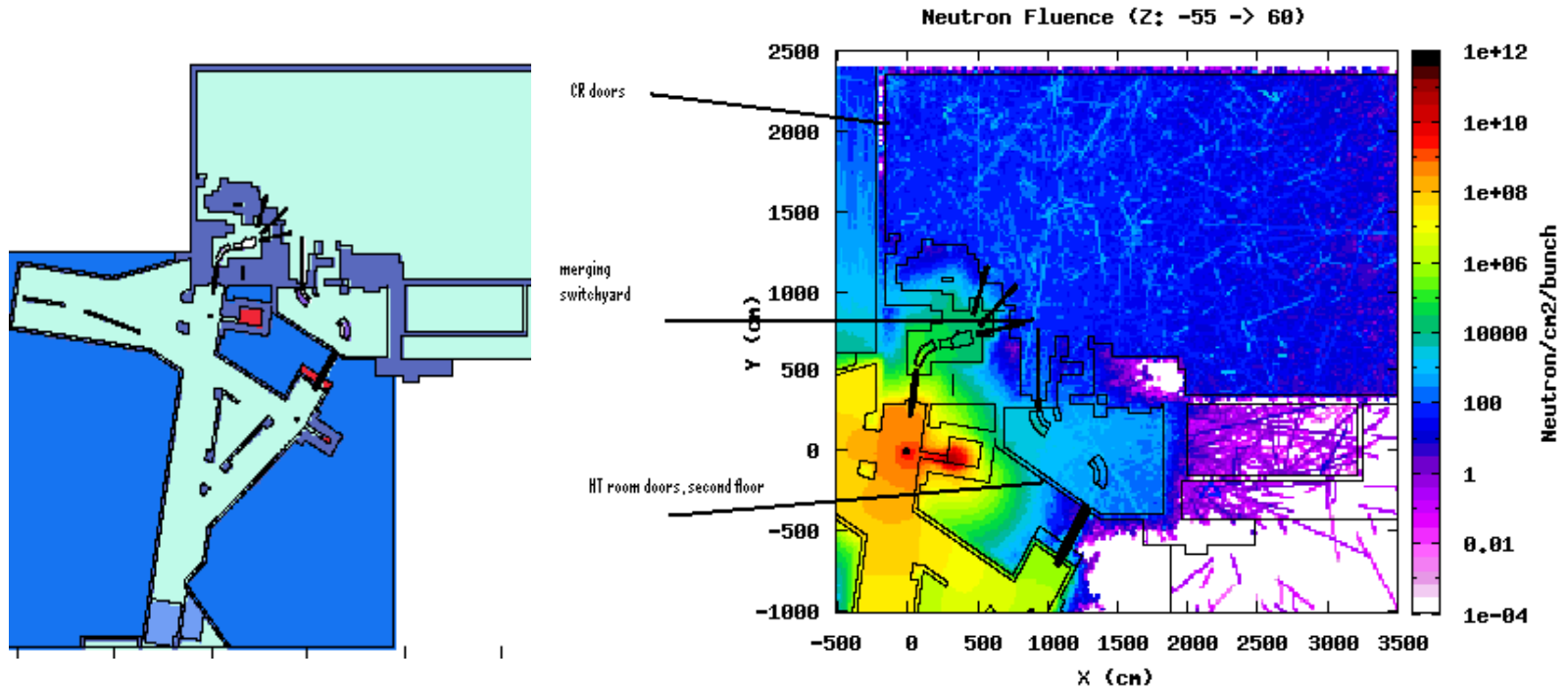


Fluka – a quick reminder



- 2007 D. Hovarth looked mainly at the air activation due to secondary particles
- The need for a better geometry was identified.
 - Especially for the experiment hall
- A simple model of the target shielding was initiated.

Fluka Simulations: a step forward



- Improved geometry for Fluka simulations
- Different colours represent different materials
- First steps in defining shielding requirements for HIE-Intensity ISOLDE
- GPS Neutron Fluence at target height
- 1 pulse at 1E+13 protons
- Need to run further simulations
- Tools are available

Special thanks to Agnieszka Leyko:
Report: Radiation Study for the ISOLDE Experimental Hall

Timeline: from a Design Study approach

