Science & Technology Facilities Council

Design Efforts ,Tools and Methods at STFC

Shrikant Pattalwar
Accelerator Science and Technology Centre
STFC, Daresbury Laboratory
UK

Overview

- STFC and Daresbury Laboartory

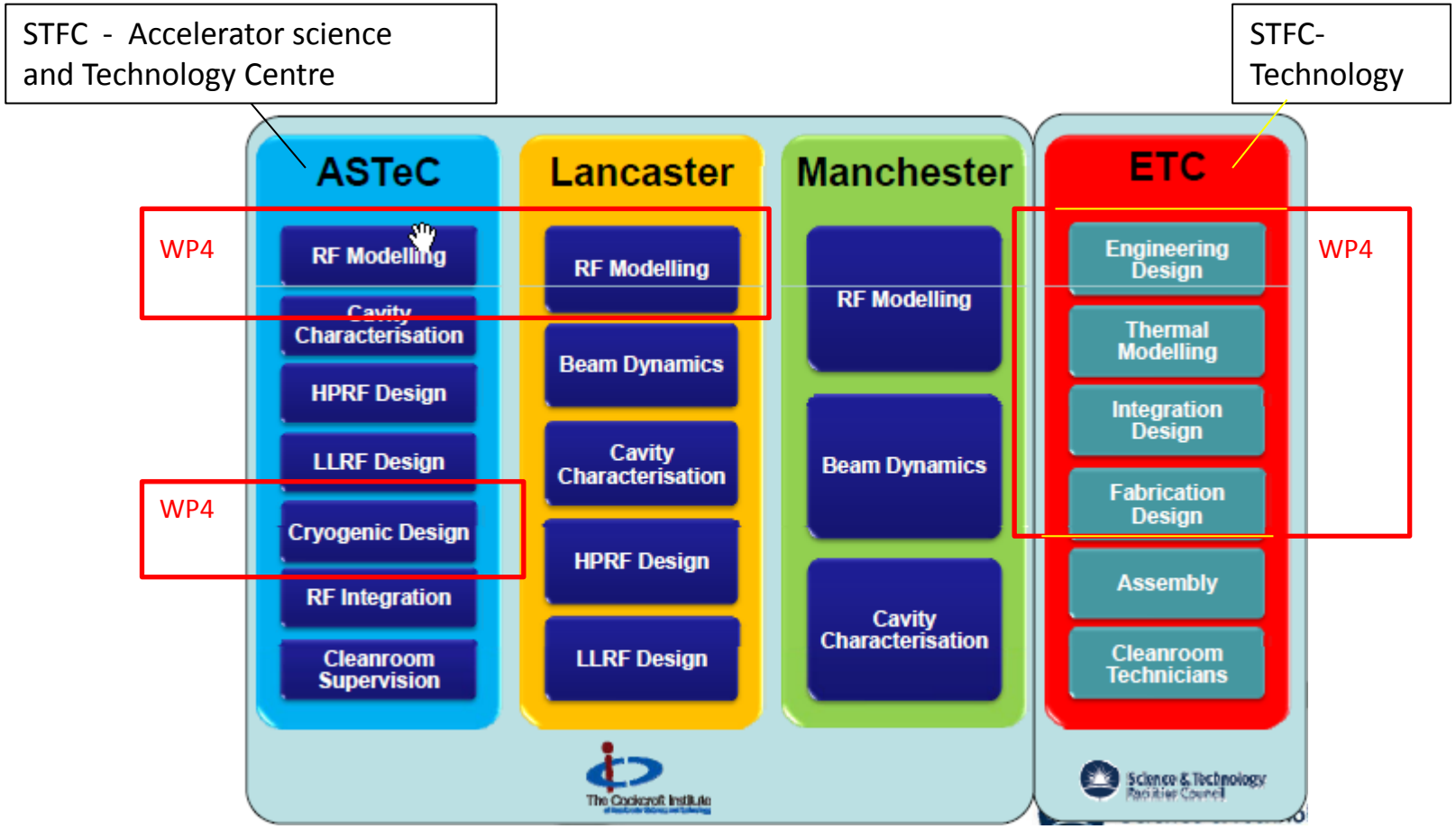
- Project Management
- Quality Assurance
- Health and safety

- WP4 organisation (in the UK)

UK STFC Sites

SRF capabilities at STFC Daresbury Laboratory

(HiLumi LHC WP4- Crab Cavities)



All follow the practices and guidelines developed by STFC

Science & Technology Facilities Council

in.focus
STFC staff intranet

About STFC

Safety, Health and Environment

Core Services

People Services

Communities

Research and Programmes

Corporate Resources

STFC Chat

- Voicemail unavailable on Tuesday 10 June
- Oxfordshire Animal Sanctuary/sainsburys charity
- Oxfordshire Animal Sanctuary news
- Still wnated : Chipped or unwanted crockery

Highlights

Voicemail will be unavailable on 10 June

Staff using the STFC Voicemail service (RAL and DL staff) please note:
There will be a day's outage on Tuesday 10 June, to allow the upgrade of the STFC Voicemail system, in line with the recent Telephony upgrade. Voicemail will be unavailable during this time (callers won't be given the option to leave messages).

Voicemail | CRISTAL MAP | Competition | Pay and bonuses

News

09 Jun	Video Conference Service Update Jun
09 Jun	Voicemail will be unavailable on 10 Jun
08 Jun	Telephone Services update 08 June
06 Jun	Vacancy: IT Security Officer
06 Jun	Vacancy: Computational Scientist/Soft
06 Jun	Vacancy: Database Administrator / Tea
05 Jun	Access to the ISS Service Managemen
04 Jun	STFC science at the Welsh Assembly
04 Jun	Investors in People – internal review du
04 Jun	Telephone Service outage for DL on 06

Internal news archive
External news archive
Submit a news article

Events

11 Jun	King Kamehameha I Day: JAC, Haw...
11 Jun	Condensed Matter Physics (CMP) in...
12 Jun	Executive Board meeting @ RAL
12 Jun	RCaH Seminar Series - 'How bacteri...
12 Jun	RAL Lecture – 'Have we seen gravit...
13 Jun	Diamond Seminar – Studying individ...
17 Jun	RCUK Lunchtime seminar - 'Equipm...
17 Jun	Café Scientifique Talk – 'The Pierre ...
18 Jun	Harwell Campus Cycling Festival
18 Jun	Condensed Matter Physics (CMP) in...

View the full diary of events
Submit event details
STFC Calendar

Project Management

STFC Project Management Framework

The STFC Project Management Framework sets out the programme management framework within which projects are appraised, funded and managed by STFC and must be followed for all funded projects and programmes.

Your online guide to project management:

Overview

- Introduction
- Relationship to other standards
- Training and Professional Development
- What is a Project?
- What is a Programme?
- STFC Programme Management Environment
- Key Principles of Project Success

Project lifecycle

- Introduction
- Typical Project Lifecycle
- Conception
- Definition
- Implementation
- Handover and Close Out
- Operation and Termination

Contacts

- Medland, Tony (STFC,SO,PROG)
- Fletcher, Matt (STFC,RAL,ISIS)

Print version

- Project Management Framework (pdf)

Useful Links

- STFC Governance Manual
- STFC Project Review Committee
- Cabinet Office - Major Projects Authority
- Association of Project Management
- Project Management Institute

Certificate of Registration

QUALITY MANAGEMENT SYSTEM - ISO 9001:2008

This is to certify that:

Science & Technology Facilities Council
Daresbury Laboratory
Daresbury Science and Innovation Campus
Keckwick Lane
Daresbury
Warrington
WA4 4AD
United Kingdom

Holds Certificate No: **FM 54433**

and operates a Quality Management System which complies with the requirements of ISO 9001:2008 for the following scope:

The design, development and project management of mechanical engineering components. The manufacture, procurement, installation, testing, commissioning, repair, assembly and development of mechanical engineering components and systems including inspection and survey.

Science & Technology Facilities Council

Technology

TSG Technical Systems

BSI

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Procedures and Processes

an example of QA for assembly process

1. 210 scw-ph1-meng-pro-001 input Coupler Unpacking procedure
2. 210 scw-ph1-meng-pro-002 Input Coupler Inspection procedure
3. 210 scw-ph1-meng-pro-003 Input Coupler Parts Storage procedure
4. 210 scw-ph1-meng-pro-004 Input Coupler Cleaning prior to bake procedure
5. 210 scw-ph1-meng-pro-005 Input Coupler Assemble Warm Coupler to bakeout fixture procedure
6. 210 scw-ph1-meng-pro-007 Leak check in cleanroom procedure
7. 210 scw-ph1-meng-pro-008v2 Bake-out procedure for cold coupler
8. 210 scw-ph1-meng-pro-009 Transportation of couplers from cleanroom to assembly room
9. 210 scw-ph1-meng-pro-011 Bake-out procedure for warm coupler
10. 210 scw-ph1-meng-pro-012 HOM cold Test procedure
11. 210 scw-ph1-meng-pro-013 Daresbury HOM repair procedure
12. 210 scw-ph1-meng-pro-015 Cavity alignment procedure
13. 210 scw-ph1-meng-pro-016 HOM bake-out procedure
14. 210 scw-ph1-meng-pro-019 Cavity string (in cleanroom) assembly procedure
15. 210 scw-ph1-meng-pro-020 Cryomodule assembly procedure

STFC
Safety, Health and Environment (SHE)
SEARCH
SHE Directory
Report an incident
SHE Home
Policies
Codes
Safety
Health
Environment
e-Suggestion
Emergencies
Radiation
Forms
SHE training
Contact
SHE Enterprise
Campus Partners
Printer-friendly
Welcome to the SHE website
Safety, Health and Environmental (SHE) considerations are critical aspects of work undertaken by many STFC staff, safety hazards faced range from civil construction, to biological safety through chemical, electrical and radiation hazards to name a few. The professional management of these hazards makes the STFC a safe place to work for us all.
This website is the STFC's main source of SHE information for staff containing master copies of key SHE management system documentation.
Important information you may need
The STFC Safety Policy
The STFC Environment Policy
What to do in an Emergency
Task specific SHE codes
Contact details for SHE Staff
Office SHE essentials
How to report SHE incidents
Risk Management
Risk Assessment Forms
On-line training
Frequently asked questions
SHE training catalogue
STFC SHE Group
Part of the Corporate Services Directorate, SHE Group is a small team of safety professionals based at RAL and DL. The SHE Group is responsible for ensuring that there are simple and effective safety systems for managers and staff to employ - maintaining and/or improving safety performance.
What's New
SHE Notices
No 156:
SHE Culture Survey Winner
NO 154:
STFC SHE Audit Programme 2014/15
No 153:
Sharing learning and information
No 152:
STFC H&S and Environment 2014_15 objectives
No 151:
SHE Culture Survey
No 150:
Product Recall
No 149:
Update to H&S and Environment policies
No 148:
Sharing learning and information.
RoSPA
20 13
ORDER OF

Safety Codes

Code	Title	Summary	PDF	PPT
SC2	Safe Movement of Vehicles on STFC Sites	Summary		
SC3	Safe use of Cryogenic Materials	Summary		
SC4	Safety and the Safe use of Work Equipment	Summary		
SC5	Incident Reporting and Investigation	Summary		
SC6	Risk management	Summary		
SC7	SHE improvement planning	Summary		
SC8	Travel on Council business	Summary		
SC9	Working at height	Summary		
SC10	Provision of safety, health and environmental (SHE) training	Summary		
SC11	Work in confined spaces	Summary		
SC12	Manual handling	Summary		
SC13	Construction (design and management)	Summary		
SC14	Radioactive sealed sources	Summary		
SC15	Management of contractors	Summary		
SC16	Biological safety	Summary		
SC17	Portable electrical equipment	Summary		
SC18	Control of noise at work	Summary		

- SHE Home
- Policies
- Codes
  - STFC Codes
    - SC04 - PUWER
    - SC03 - Cryogenics
    - SC02 - Movement of Vehicles
    - SC05 - Incident reporting and investigation
    - SC06 - Risk management
    - SC07 - SHE improvement
    - SC08 - Travel
    - SC09 - Work at height
    - SC10 - Training
    - SC11 - Confined spaces
    - SC12 - Manual handling
    - SC13 - Construction
    - SC15 - Management of contractors
    - SC17 - PAT
    - SC18 - Noise at work
    - SC19 - Work on buildings
    - SC20 - Gases and dust
    - SC22 - Working with lasers
    - SC23 - Electro-magnetic fields (EMFs)
    - SC24 - Health and

SC 33 - Safety of pressure and vacuum systems

Print PDF version

Launch PPT

Contents

1. **Purpose**
2. **Scope**
3. **Definitions**
4. **Responsibilities**
   - 4.1 **Departmental Directors**
   - 4.2 **Line Managers**
   - 4.3 **Pressure/Vacuum System Design Engineers**
   - 4.4 **Pressure/Vacuum System Nominated Engineers**
   - 4.5 **Pressure and Vacuum System Technicians**
   - 4.6 **Pressure System Permit Issuers**
   - 4.7 **SHE Group**
   - 4.8 **Staff, Tenants, Facility Users or Visitors**
5. **References**

Appendices

- Appendix 1 - **Pressure system exemption flowchart**
- Appendix 2 - **Contents list for relevant documentation**
- Appendix 3 - **Designers process flowchart**
- Appendix 4 - **Dealing with Pressure and Vacuum systems brought on site by others for use on STFC sites**
- Appendix 5 - **Sample Permit to Work on Steam Systems or inside a Pressure Vessel**
- Appendix 6 - **Training**
- Appendix 7 - **Audit checklist**

Revisions

Crab Cavities - WP4

Objectives

Task 4.1. Coordination and Communication.

- Coordination and scheduling of the WP tasks
- Monitoring the work, informing the project management and participants within the JRA
- Follow up the WP budget and use of resources

Task 4.2. Support studies

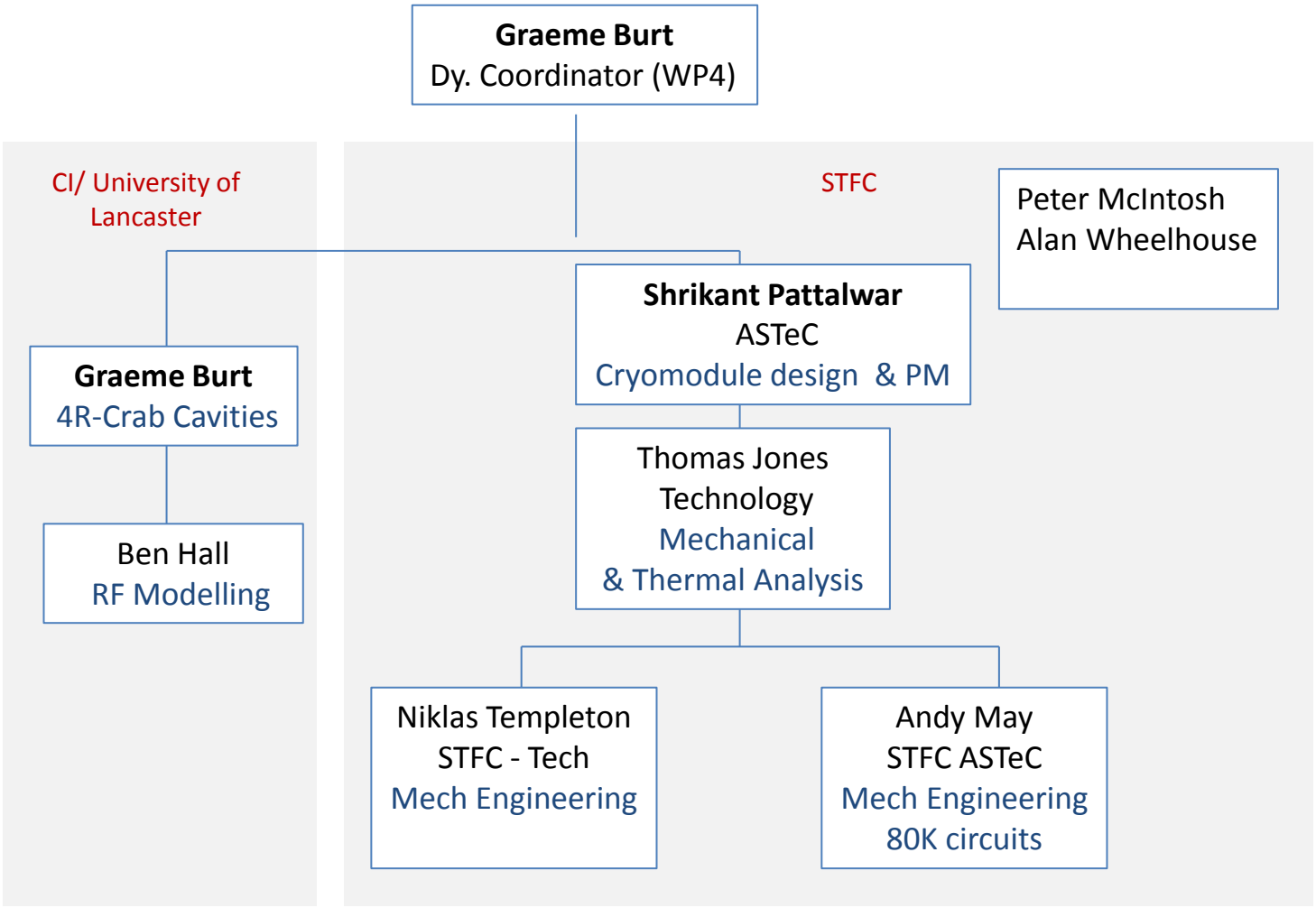
- Tunnel preparation SPS and LHC
- Local IR layout and spatial integration
- Effect of phase noise, LLRF system conceptual design
- RF power system specification
- Operational aspects (how to commission/make invisible)
- Interlocks and fast Feedback

Task 4.3. Compact Crab Cavity Design

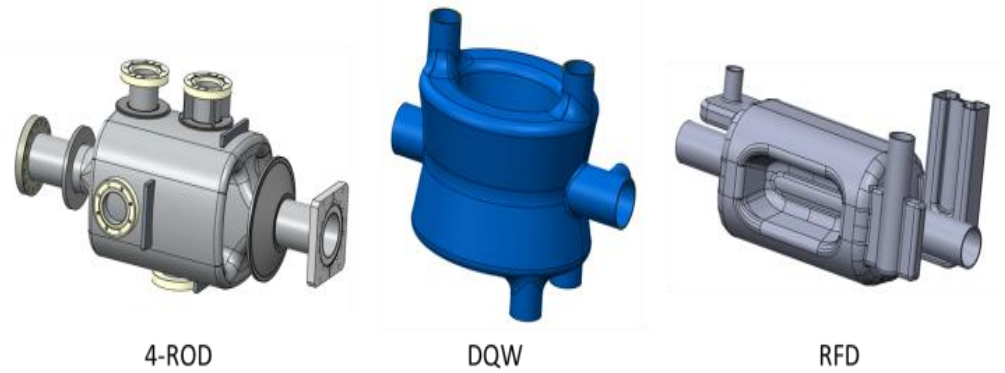
- Complete cavity and cryomodule specifications
- Design optimisation for novel schemes
- Conceptual design of SOM, HOM and LOM couplers
- Conceptual design of helium tank and cryostat
- Multipacting simulations on cavity & couplers
- FEM simulations: mechanical & thermal aspects
- Initial down-selection of the CC options
- Completion of a full technical design on the initial down-selected options, with mechanical drawings and specification.
- Design of tooling, dies and cavity fabrication equipment

WP4 Responsibilities

(UK)



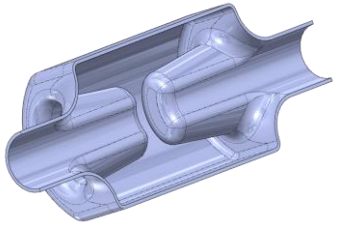
WP4 Global Collaboration

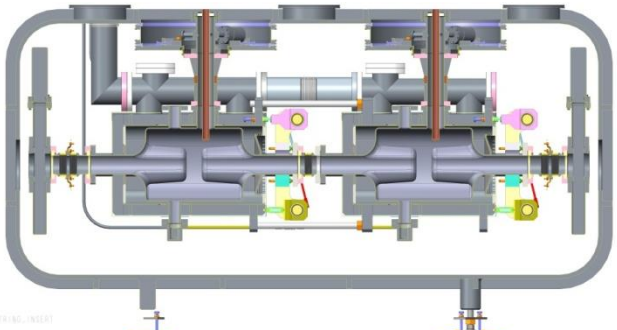


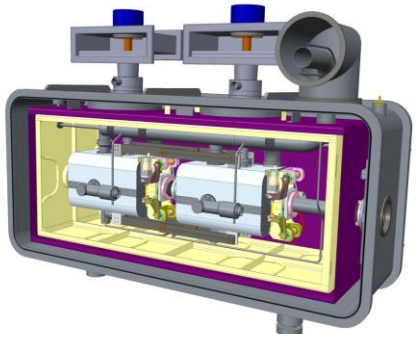
- Three cavity design were under consideration
- Immediate goal is to install a Cryomdule in SPS before LS2
- It is feasible to install cryomodules for **DQW** and **RFD** only
- The Collaboration is working to identify as many common features as possible to develop a cryomodule for both the cavities by share the design efforts and resources within the collaboration

Common Design Approach

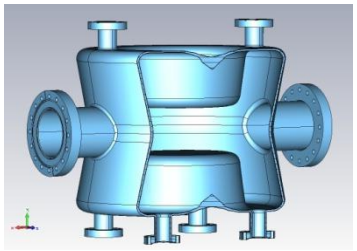
4-Rod

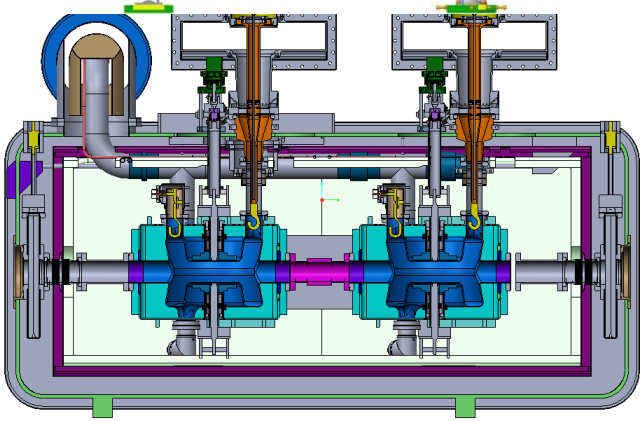


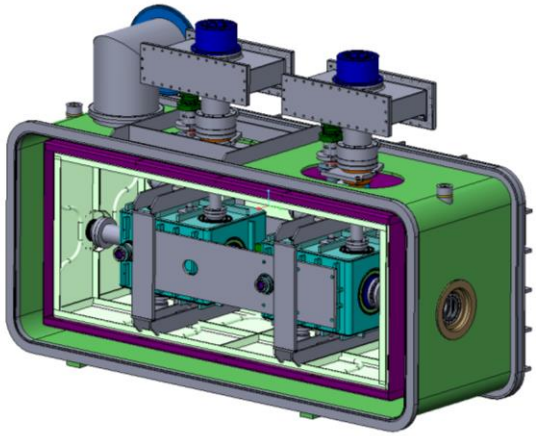




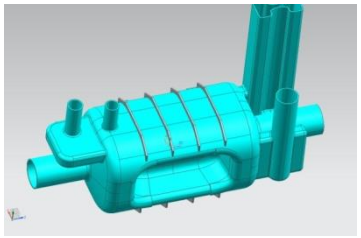
Double QW

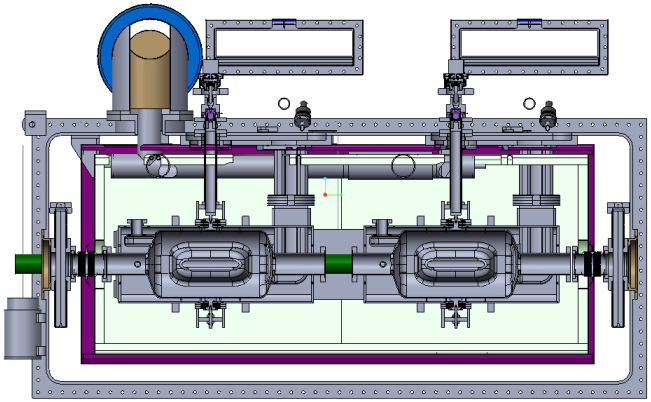


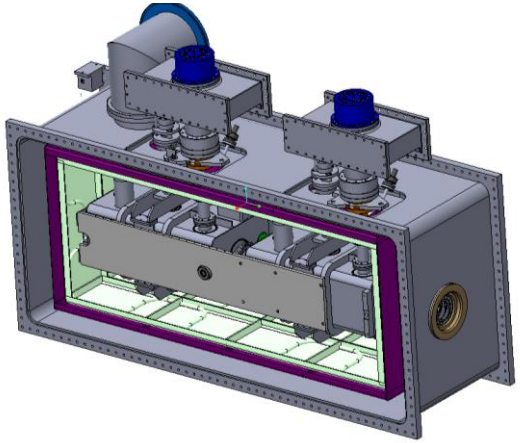




Dipole







Further Plans

Primary Leads:
Ofelia Capatina and Rama Calaga

Detail responsibilities within the collaboration are being re-organised

STFC	ASTeC, Technology, University of Lancaster
CERN	Various Departments
LARP	ODU, JLAB, BNL, FNAL

Summary

- STFC has a robust **Project Delivery Framework** supported by
  Well established Procedures for Quality Assurance
  Well established Procedures to comply with various regulations and standards

- We look forward to our continued contribution to the success of the HiLumi-LHC.

Thank You