

MICE Absorber and Focus Coil (AFC) Design Description

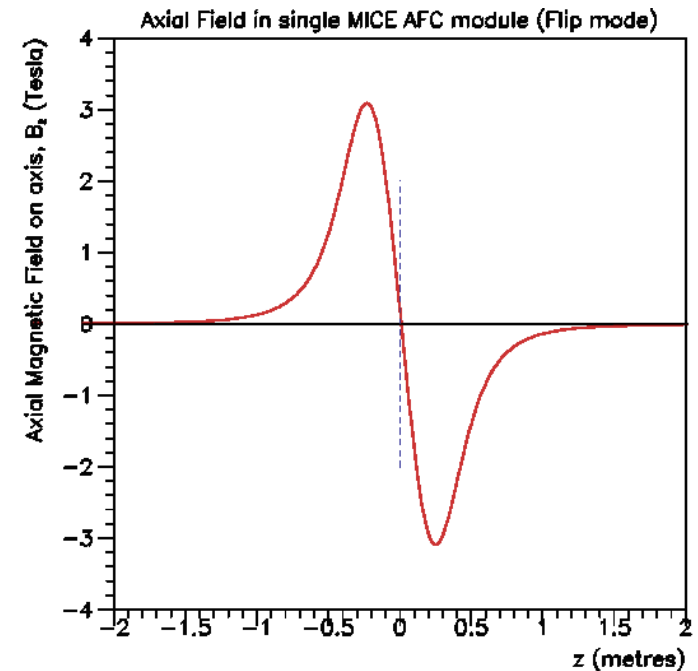
MICE Hydrogen System Review 4th October 2011

Tom Bradshaw Elwyn Baynham
John Cobb Mike Courthold
Wing Lau Victoria Bayliss
Matt Hills

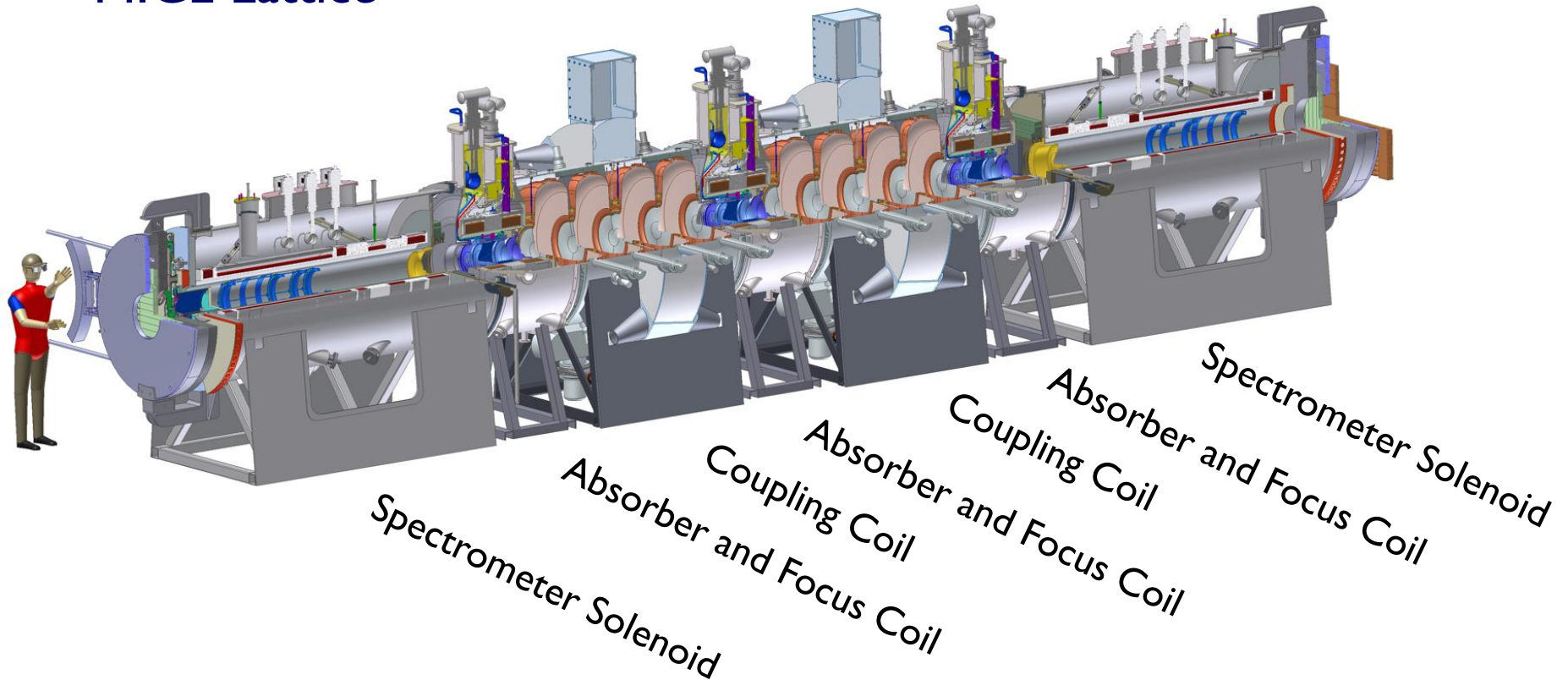


MICE Absorber and Focus Coil Magnet

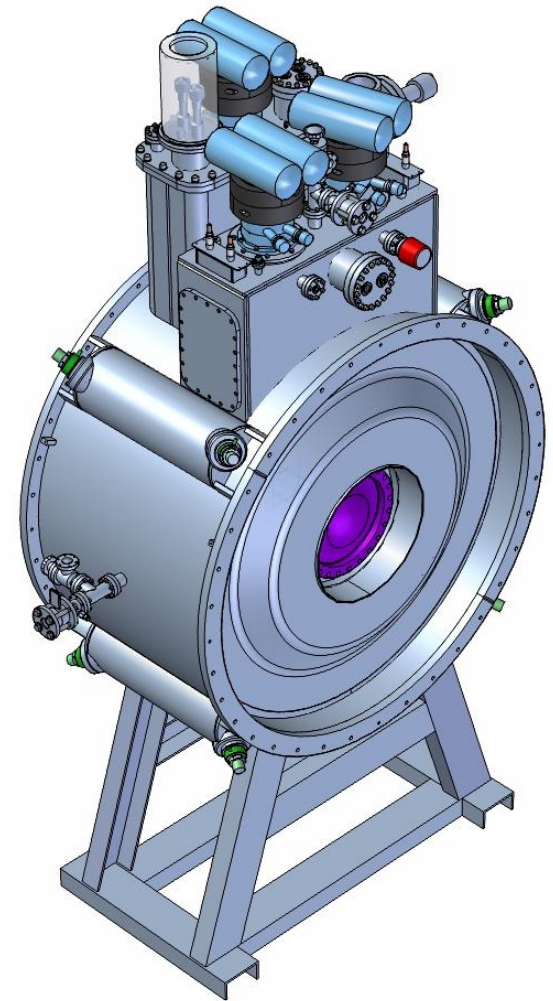
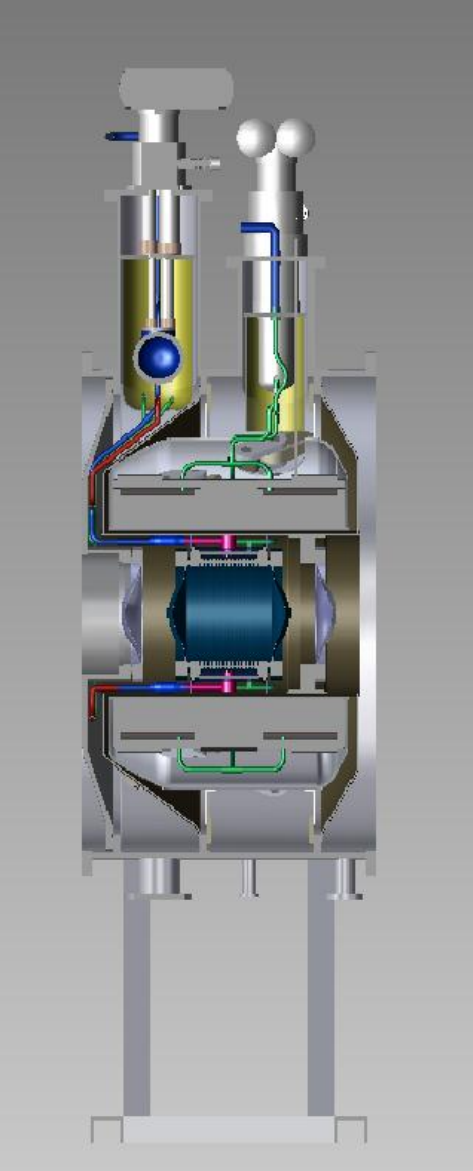
- Design of intent made by Oxford Nuclear Physics and RAL Cryogenics and Magnetics Group
- Has two coils that can operate in solenoid or “flip” mode
- Part of the MICE Lattice



MICE Lattice

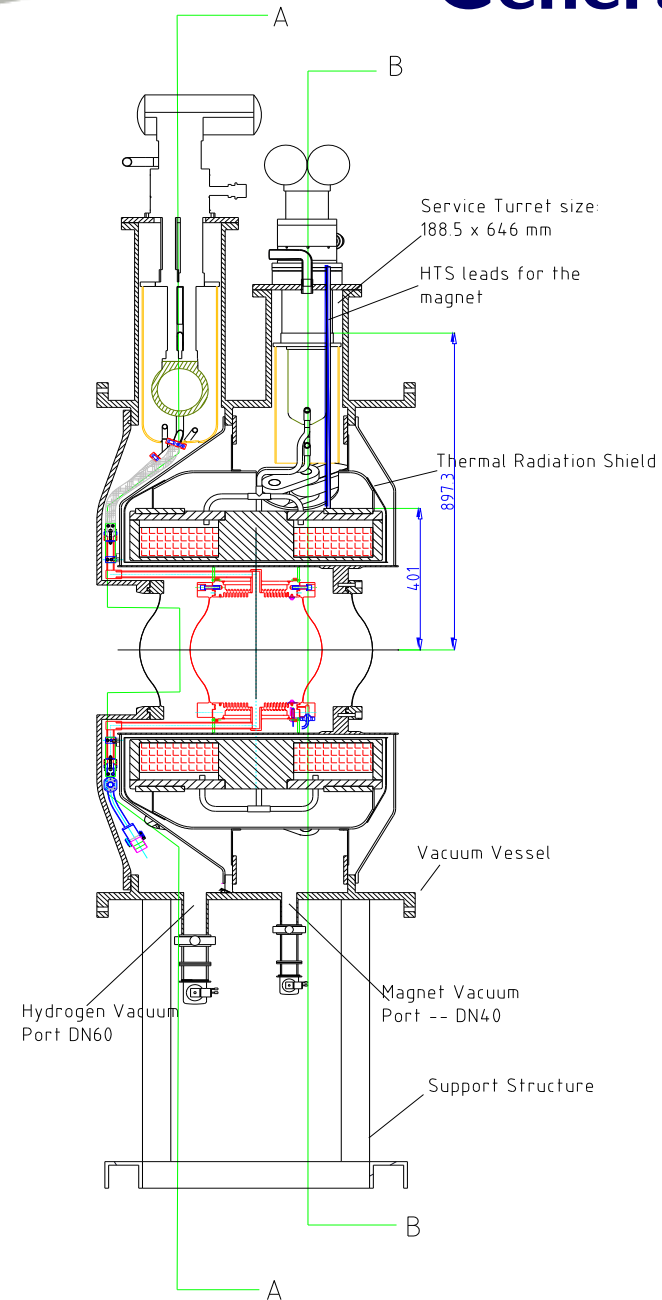


These are large magnets and design is complicated by the interaction (forces) from the rest of the MICE lattice in the various stages of construction.

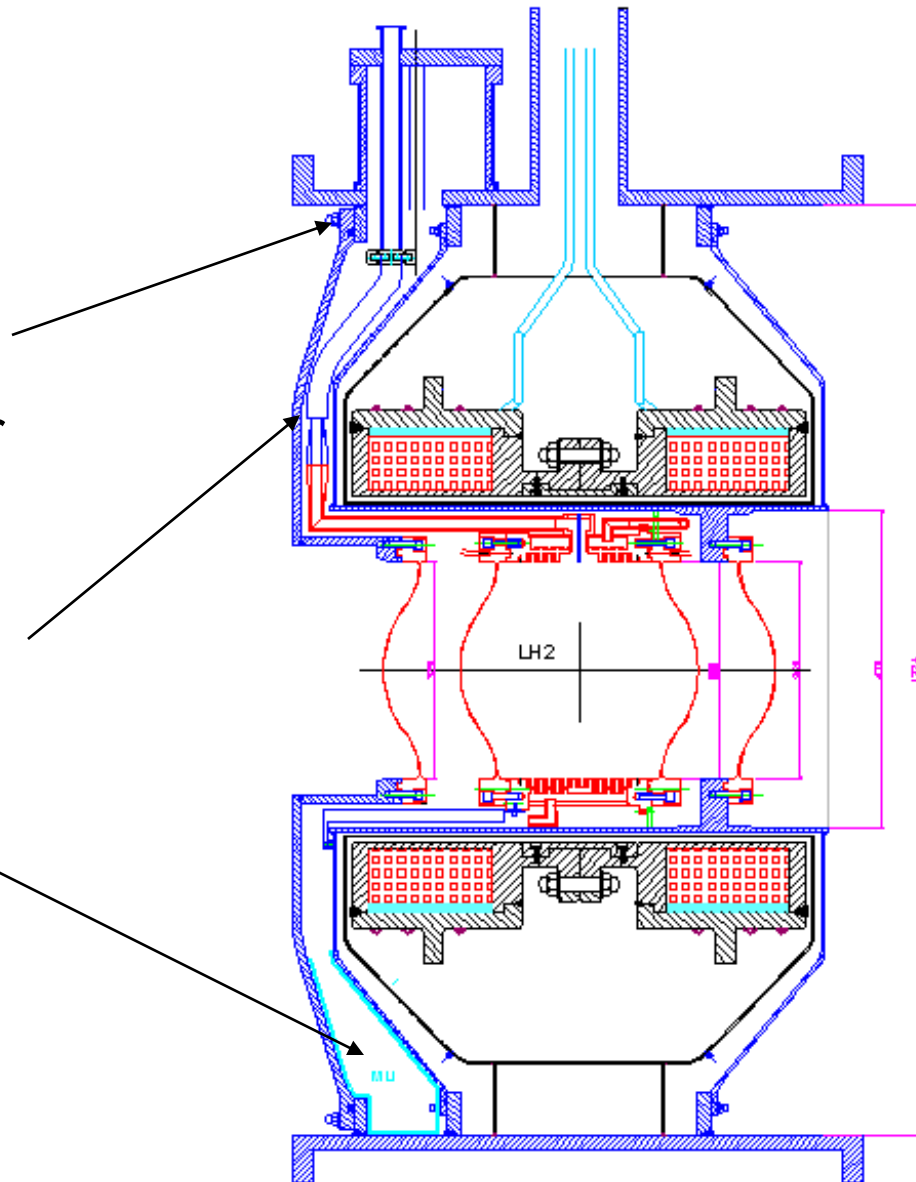


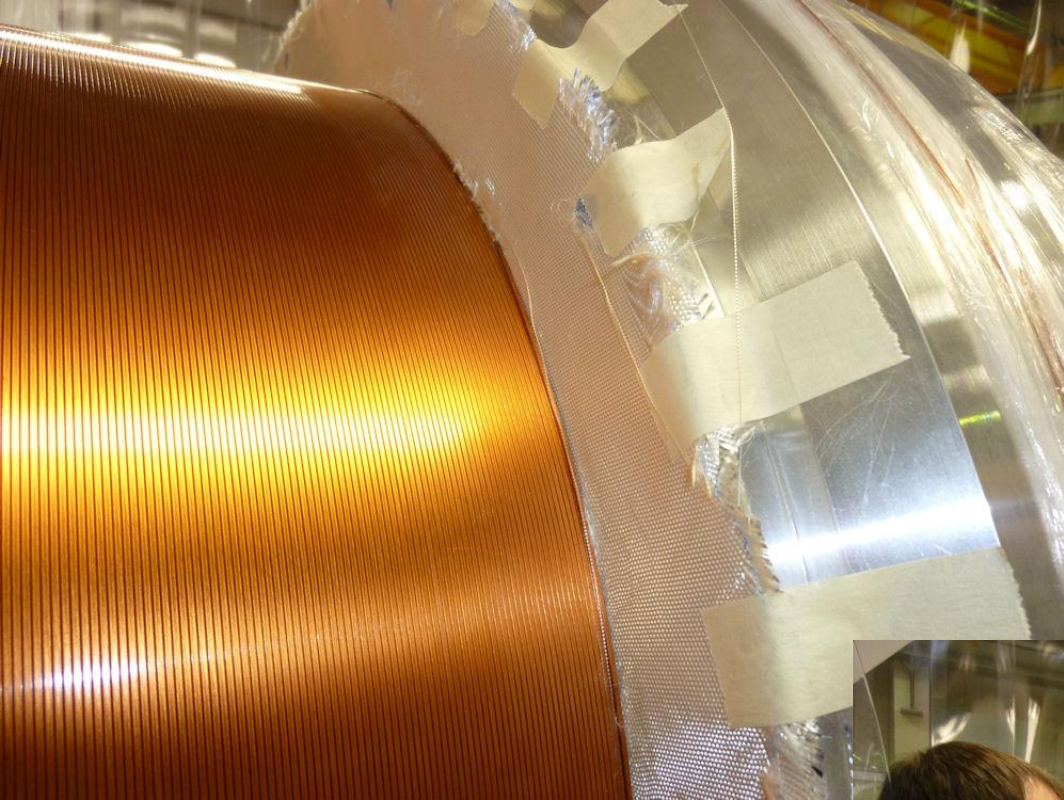
Features

- Separate space for hydrogen system
- Safety Windows
- Dump for any spills to limit boil off
- Warm bore so cryogenics are not coupled
- Hydrogen volume 22 litres
- Should be able to test with Helium at 4K



- a) Windows are mounted off RT interface – see thermal model later
- b) Space for change in pipe dimension close to magnet
- c) Large “bucket” at base to contain any rupture





Winding of AFC I

Winding of AFC 2





Module/Activity	Due Date
AFC1 at RAL	Early December 2011 – trying to improve on this
Absorber integration and test	+3mths elapsed
AFC2 at RAL	June 2012 – worst case trying to improve on this
Absorber integration and test	<3mths

Addendum: 20th October Visit to Tesla

- AFC #1 in final stages of manufacture
- Delivery has slipped to end February 2012
 - Sub-contract vacuum brazing
 - Large milling machine broken down, vital for OVC tooling, will have to sub-contract
 - OVC assembly and tooling appears critical path item
 - Tesla upper management appear to be fully engaged
 - All work done so far is very high quality; technical risks are low
 - AFC #2 is going well in parallel; the three month follow-on looks credible