



Further Cooling Experiments?



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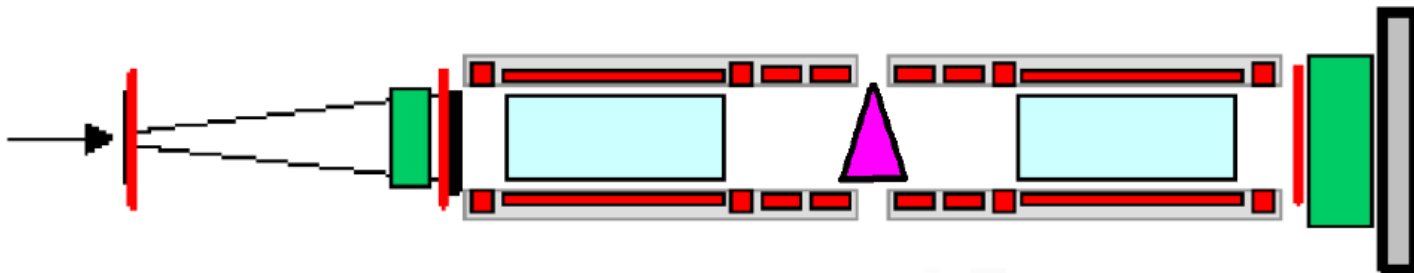
Do we need more cooling expts?



- We have two cooling demo experiments
 - i.e. cooling channel with beam
- MICE
 - Measures physics processes (but how well)
 - Explores integration issues of RF + Absorbers + Solenoids
- MANX
 - Tests HCC beam dynamics (vs RHIC)
 - Tests construction of long MANX coil
 - Demos 6D cooling and HCC to wider community
- Do we need anything else?
 - In particular, wedge-type experiment

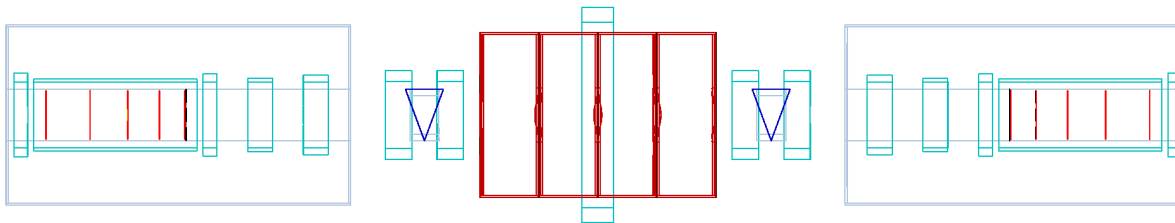
Concept (i)

- Simple wedge
 - Induce dispersion in input beam
 - Measure emittance exchange
- To what purpose?
 - “Proof-of-principle” - demo for wider community
 - Test material physics model in a different geometry
- Open questions
 - Which material?
 - What opening angle?
 - Can we measure an effect?



Concept (ii)

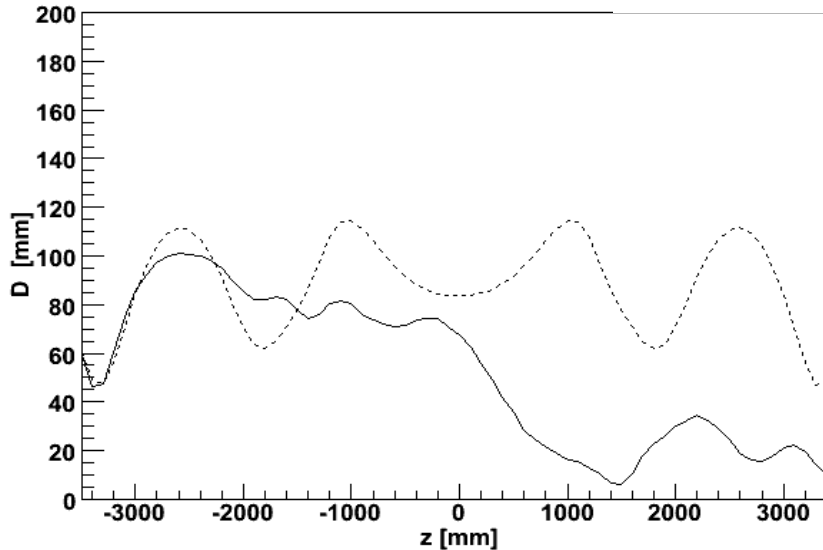
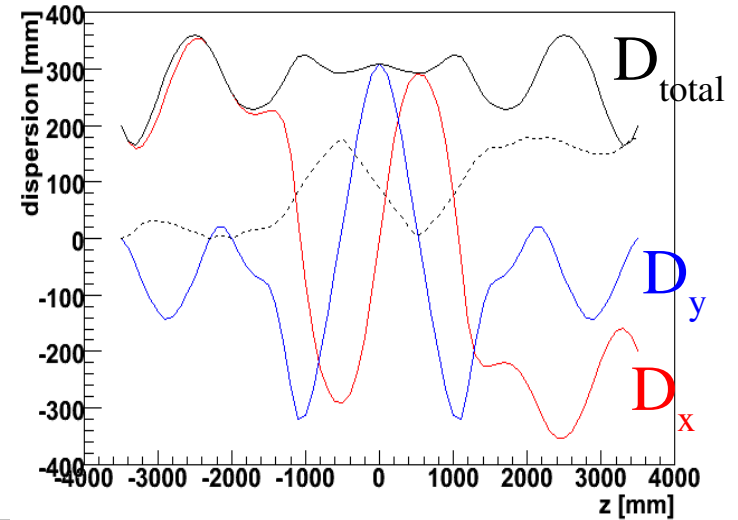
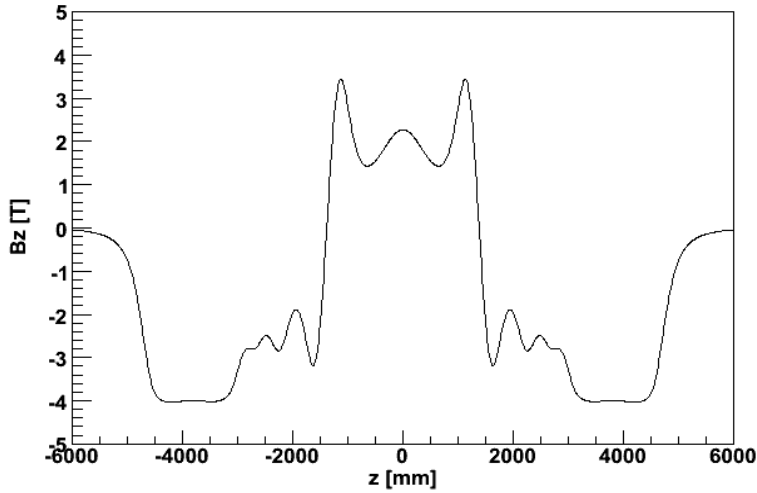
- Wedge with re-acceleration
 - Induce dispersion in input beam
 - Measure emittance exchange including reacceleration
- To what purpose?
 - Demo for wider community
 - Test integration of components in different arrangement
 - E.g. dark currents may pass through wedge ends
- Open questions - as above, plus
 - Can we get the beam dynamics to work?
 - Do the wedges shield detectors from dark currents sufficiently?



Concept (ii) - Simulations



- Beam dynamics is not straightforward

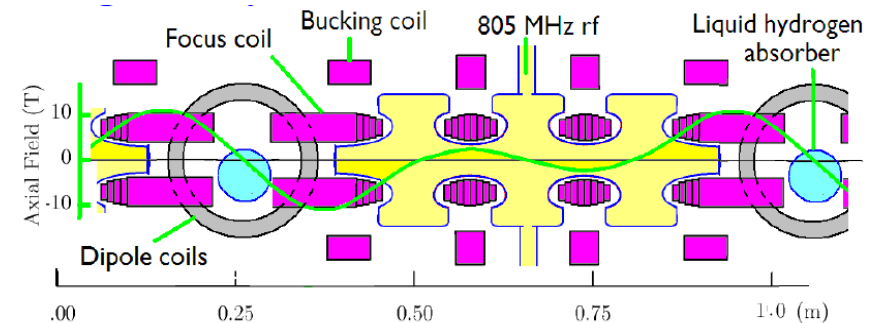
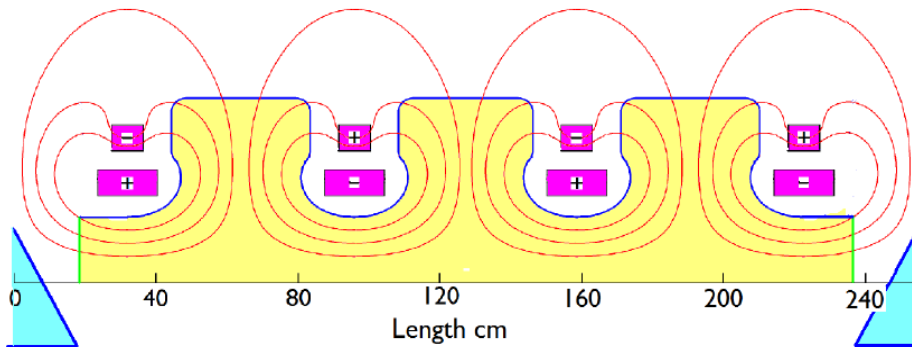


Linear optics

Tracking

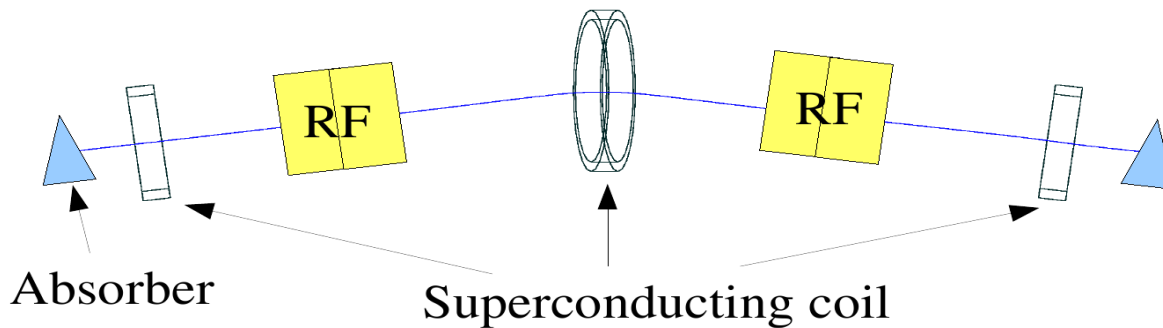
Concept (iii)

- Palmer (guggenheim) lattices
 - Magnetically insulated RF
 - Tilted solenoids
- To what purpose?
 - Demo for wider community
 - Test integration of components in different arrangement
 - Test insulated RF idea (presumably staged)
- Many open questions
 - SBIRs in progress?



Concept (iii) - cont

- Alternate stretched SFoFo ring
 - RF sits in lower B-field region
 - “More-or-less” uses MICE coils
 - Would need to tweak the lattice + remount coils on tilting assembly
 - “More-or-less” works
 - Needs playing to get big energy spread through

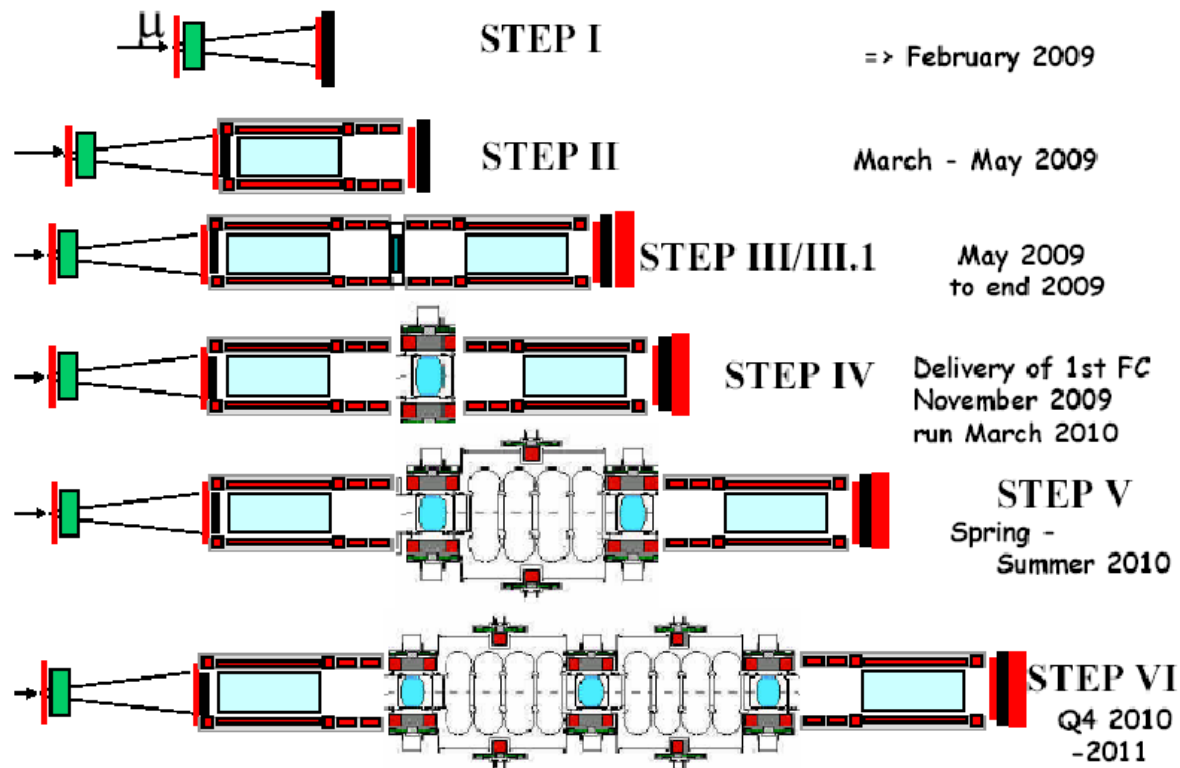


MICE Timeline (Zisman, 21-10-2008)



• Best present estimate

Probable Aspirational MICE Schedule as of October 2008





Concept (iii) - cont



- There is still time - but not much
- Need to identify resources esp manpower
- See also (Palmer @ MICE CM 22):
 - <http://indico.cern.ch/getFile.py/access?contribId=6&sessionId=6&resId=0&materialId=slides&confId=38903>
 - (Or follow links from <http://www.mice.iit.edu/cm/cm22/cm22.html>)