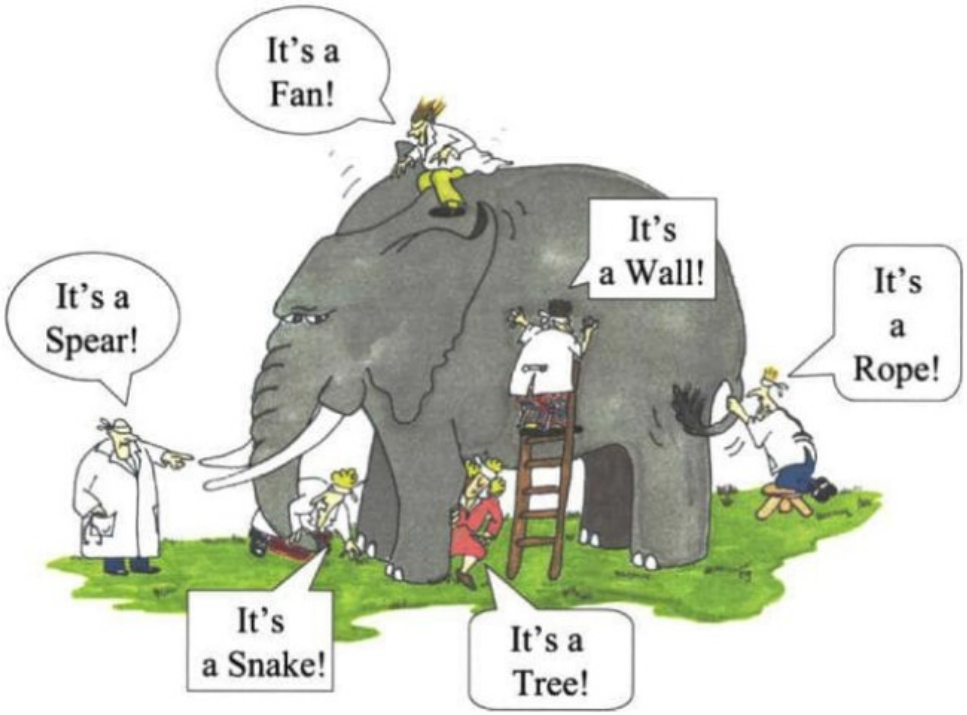
IMCC Demonstrator Workshop

Discussion



Picture from this source

- General discussion of Demonstrator "programme"
- Specifics on 6D Cooling Demonstrator
- A little on siting
- Closeout

Workshop

- Hosted by Fermilab
- 113 registrants
- Representatives from all 3 regions
  - European, US and Japanese representation
  - Strong enthusiasm to contribute to the programme
  - Discussion of hosting options in all the major HEP labs

Agenda

Wed 30/10

10:00	Registration and Coffee One West, Fermilab - Wilson Hall 10:00 - 10:30	
	Lab Welcome	Lia Merminga
	Orientation	Sergo Jindariani
11:00	The Muon Collider Programme	Daniel Schulte
	Cooling system design	Diktys Stratakis
12:00	Goals and scope of the demonstrator	Roberto Losito
	Group Photo & Lunch One West, Fermilab - Wilson Hall 12:30 - 13:30	
13:00	Cryogenics for the cooling cell magnets	Patricia Tavares Coutinho Borges de Sousa
14:00	Simulation software for ionisation cooling	Mr Bernd Stechauner
	Cooling cell integration issues	Lucio Rossi
15:00	Break One West, Fermilab - Wilson Hall 15:00 - 15:30	
	Magnet R&D in Japan	Satoshi Awaji
16:00	US high field magnet programme and application to cooling	Stephen Gourlay
	Magnet development for cooling in Europe	Marco Statera
17:00	Development of Radiation-Tolerance SC Magnets - COMET and a Future Muon Source	Makoto Yoshida
18:00		

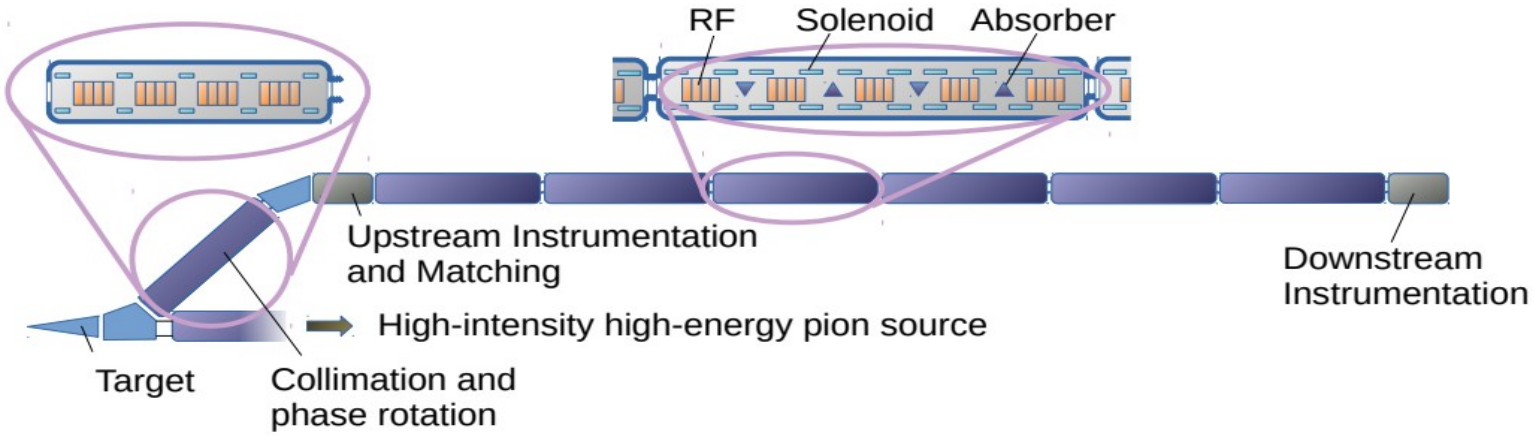
Thu 31/10

09:00	Design of Cavities for Cooling	Carmelo Barbagallo
	Design of RF structures for the Demonstrator	Dario Giove
10:00	RF Source for the Demonstrator	Igor Syratchev
	Break One West, Fermilab - Wilson Hall 10:30 - 11:00	
11:00	RF studies at SLAC and application to cooling	Emilio Nanni
	RF studies at Fermilab and application to cooling	Sergey Belomestnykh
12:00	RF studies at LBNL and application to cooling	Tianhuan Luo
	Lunch One West, Fermilab - Wilson Hall 12:30 - 13:30	
13:00	Alternative Muon Cooling at JPARC	Shusei Kamioka
14:00	Status of muCOOL	Angela Papa
	Muon beams for muZe	Michael Hedges
15:00	COMET status and plan and demonstrator at JPARC	Satoshi Mihara
	Future of Muon Science at JPARC and KEK	Tsutomu Mibe
16:00	Break One West, Fermilab - Wilson Hall 16:00 - 16:30	
	CERN as a host site for Demonstrator	Lukasz Krzempek et al.
17:00	Muon Science - from fundamental to applications	Kojhiro Shimomura
	Brookhaven contributions to the demonstrator programme	Mark Palmer

Fri 01/11

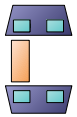
09:00	Muon activities in China	Jingyu Tang
	SNS Contributions	Vasiliy Morozov
10:00	ESS contributions to the demonstrator	Natalia Milas
	Break One West, Fermilab - Wilson Hall 10:30 - 11:00	
11:00	A low energy cooling test area at RAL	Rhea Stewart
	Contributions from Jefferson Lab	Roger Ruber
12:00	Muon Collider Relevant R&D at LANL	Steve Russell
	Lunch One West, Fermilab - Wilson Hall 12:30 - 13:30	
13:00	Muon Cooling Demonstrator Siting at Fermilab	Jeff Eldred
14:00	Discussion: Physics applications One West, Fermilab - Wilson Hall 14:00 - 14:30	
	Discussion: Siting and Programme One West, Fermilab - Wilson Hall 14:30 - 15:00	
15:00	Wrap-up	Chris Rogers
	Break One West, Fermilab - Wilson Hall 15:30 - 16:00	
16:00	The Path to an Energy Frontier Muon Collider One West, Fermilab - Wilson Hall 16:00 - 17:00	Mark Palmer
17:00		

Aim

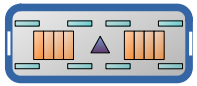


- Integration
- Operation
- Beam Physics

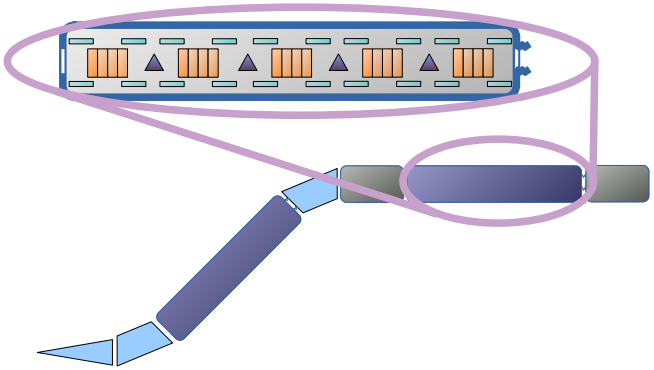
Scope – rectilinear cooling



RF Test programme, to develop novel RF and develop magnet designs



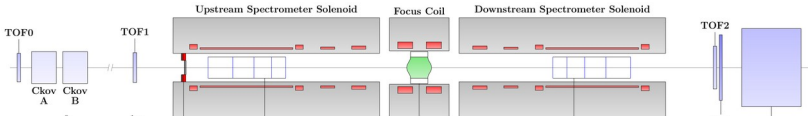
Prototype cooling vacuum vessel to explore magnet, absorber and RF system integration

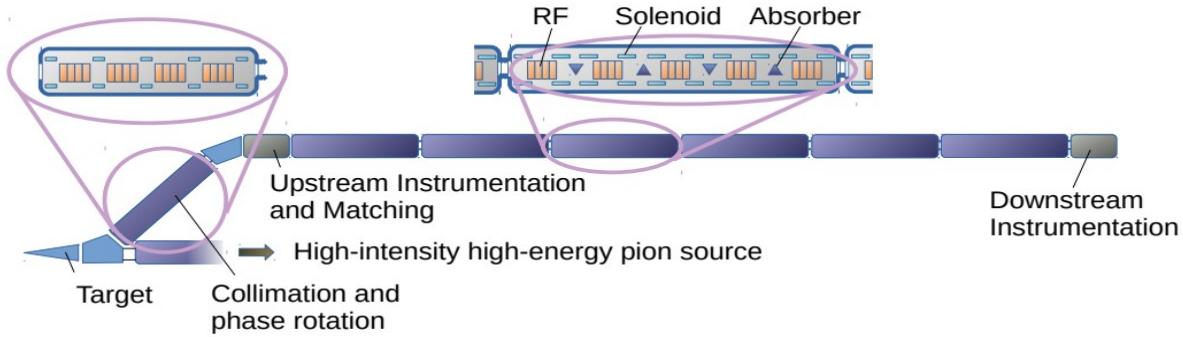


Rectilinear cooling vacuum vessel with beam

Rectilinear cooling lattice with beam

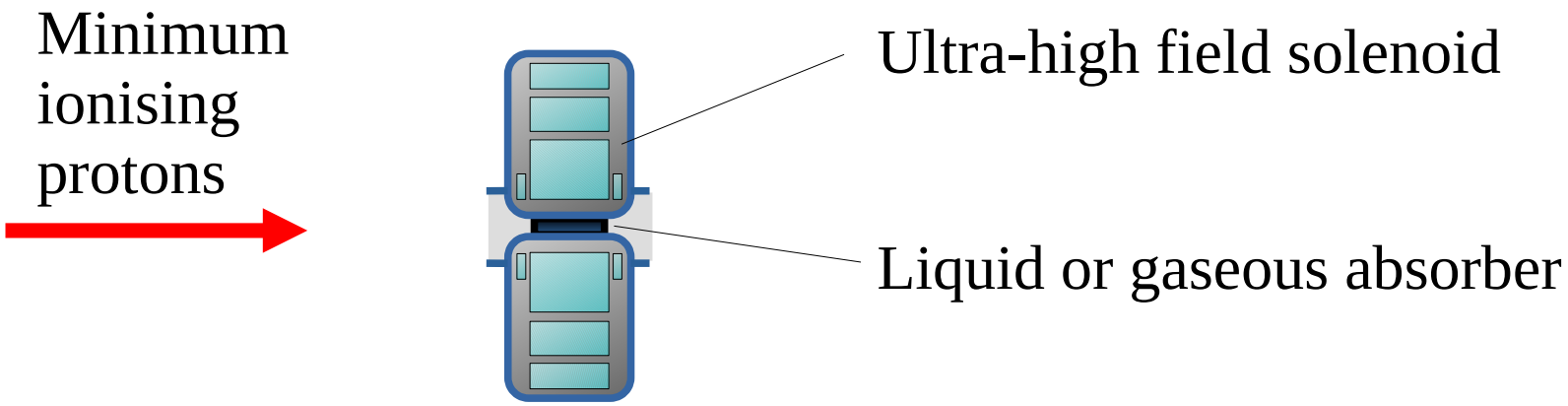
Aims





	MICE	Demonstrator
Cooling type	4D cooling	6D cooling
Absorber #	Single absorber	Many absorbers
Cooling cell	Cooling cell section	Many cooling cells
Acceleration	No reacceleration	Reacceleration
Beam	Single particle	Bunched beam
Instrumentation	HEP-style	Multiparticle-style

Need – intensity?



- Collective effects
  - Space charge and beam loading/wakefield are well-known
  - What about wakefield in presence of absorber?
  - What about surprises?
- Absorber & heat load
  - Easy to calculate
  - Effect unknown (boiling, cavitation, plasma, …)
- Work ongoing to explore feasibility of experiment

Thanks!

International MUON Collider Collaboration

INTERNATIONAL ADVISORY COMMITTEE

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