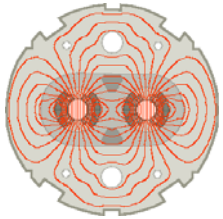


LOC Members as of July 2005

Staff:

Ralph Assmann [RA]

Helmut Burkhardt [HB] (50% RLC)

Oliver Bruning [OB]

Stephane Fartoukh [SF]

Simone Gilardoni [SG] (50% LII)

Massimo Giovannozzio [MG]

Jean−Bernard Jeanneret [JBJ]

John Jowett [JJ] (85% LII)

Alessandra Lombardi [AL] (50% HSL)

Thys Risselada [TR]

Frank Schmidt [FS]

Ioannis Papaphilippou [IP]

Students

Chiara Bracco [CB]

Riccardo De Maria [RDM](100% RLC)

Guillaume Robert−Demolaize [GRD]

Fellows

Stefano Redaelli [SR]

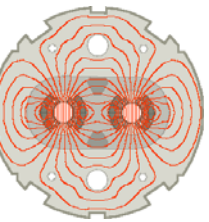
Alexander Koschik [AK]

Lionel Neukermans [LN] (100% RLC)

UPSA

Kaizhi Zhan [KZ]

Visitors



LOC Mandate

- ***LHC optics:***

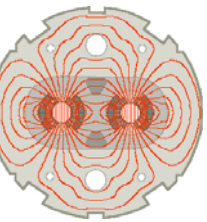
  Definition of the LHC machine and transfer line optic models and maintenance of a central optics data base. Numerical simulations of the single particle stability and machine performance.

- ***LHC magnets:***

  Definition of target field quality and geometry for all LHC magnets. Definition of installation strategies based on measured mechanical aperture and field quality of each magnet.

- ***LHC injection and aperture:***

  Performance analysis of the injection process and collimation in the transfer lines in view of machine protection. Analysis and improvement of the LHC aperture and maintenance of an LHC aperture model.



LOC Mandate

- ***LHC Collimation:***

  Design of the LHC collimation systems. Advanced modeling of diffusion processes, beam halo formation and beam loss mechanisms in the LHC.

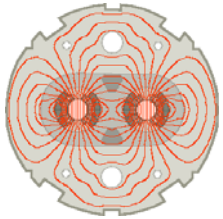
  Performance analysis of the collimation system and tolerance studies for the main machine parameters. Definition of operation scenarios, strategies and commissioning procedures. R&D activity for the Phase II collimation design and beam intensity upgrades.

- ***Software development and support:***

  Development, maintenance and support for the MADX and SixTrack codes. Development and support for dedicated environments for simulations.

- ***Commissioning:***

  Definition of beam parameters and tolerances for operating the LHC. Participation in the beam instrumentation specification and definition of procedures for the machine commissioning.



Objectives in the LOC Section for 2005

- ***LHC data base work and optics optimization:***

  SPS−LHC transfer lines: optics finalization & optimization & collimation & matching to the LHC

  LHC V6.5 release: injection, lumi configurations with x−ing, transitions

  data base of sample jobs, MADX input files and optics data files

  LHC aperture model

  MADX model based on magnet measurements and slot assignment

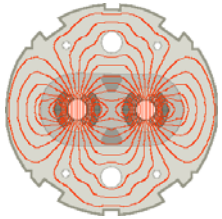
- ***LHC magnet field quality and geometry evaluation:***

  finalization of field quality and geometry specifications

  sector 81, 34 and 45 and IR8, IR1, IR4, IR5 and IR7 slot assignment

  reference powering cycles for insertion magnet TF measurements

  tracking simulations



Objectives in the LOC Section for 2005

LHC Collimation:

Collimation project management

Phase II collimation design

tolerance studies for main machine parameters

definition of operation scenarios and strategies (specification team)

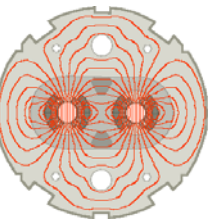
LHC commissioning preparation:

define LHC commissioning organisation (in collaboration with LHCOP)

definition of procedures and algorithms for machine debugging

participation in the application software design

develop expertise in machine operation and commissioning in other machines (e.g. PLL at RHIC)



Objectives in the LOC Section for 2005

- ***LHC performance simulation studies:*** DA, flexibility, etc

- ***Tools:*** MADX and Sixtrack support & development

  MADX collaboration −> international & inter laboratory effort

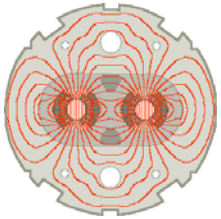
- ***Other I:*** Training and schools: CERN summer school, HST, JUAS and CAS

  LHC reviews: MP; LHC hardware commissioning, MAC....

- ***Other II:*** many LOC members contribute also to other sections and tasks!

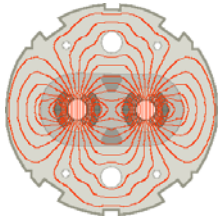
For example: LHC upgrade studies & ELAN /CLIC

→ definition of machine and beam parameters



Who does What in 2005

- **LOC Section leader:** -> MG
- **LHC data base work – transfer line optics:** -> TR & HB; AK
- **LHC data base work – MAD model:** -> TR & MG & (SF)
- **LHC data base work – optics:** optics assembly -> TR
  - WWW display -> JJ
  - nominal optics for IR1 & IR5 -> SF
  - IR2 -> Gianluigi Arduini (OB)? -> JJ
  - IR3 & IR7 -> TR
  - IR4 & IR6 -> AV -> MG
  - IR8 -> AL (TR)
- **LHC data base work – aperture:** -> JBJ, SR,TR, (JJ)



Who does What in 2005

LHC magnet field quality and geometry:

ABP Magnet Activity Coordinator -> SF

WGA chairman -> JBJ

MEB scientific secretary -> MG

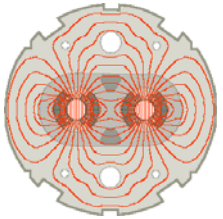
FQWG -> OB, SF, MG

LHC aperture -> JBJ

−system responsability (main + corr):
(specification write−up and element−by−element follow−up)

- main dipole magnets -> SF,SG
- SSS assembly -> AL<−>IP
- insertion magnets -> MG,IP
- triplet magnets -> FS

−support for geometry analysis for all elements -> JBJ



Who does What in 2005

LHC collimation:

LHC Collimation Project Leader −> RA

−collimation team in ABP: −> RA, SR, GRD, CB

−plus one additional fellow in 2005 and support from IHEP and JBJ

LHC commissioning preparation:

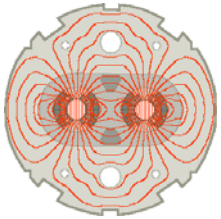
−LTC Scientific Secretary −> OB LTC members: −> RA, SF, MG,

open meetings −> active participation of AB−ABP members is encouraged

−LHCOP −> OB

MADX model implementation in the LHC control system −> FS

participation in machine operation & feedback for application software



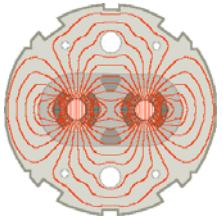
Who does What in 2005

Tools:

- Sixtrack and ´run−environment´ for DA studies: −> FS (+ support from EMcI)
- MADX custodian: −> FS secretary of MADX meetings: −> TR
- MADX module distribution in LOC:

survey	−> AV −> FT
tracking	−> AV −> AK
thin lens converter	−> HB
aperture	−> JBJ
EMIT	−> RA
TWISS	−> FS
PTC	−> FS
MATCH	−> OB
threader	−> TR
PLOT	−> RDM

- plus contributions from other sections, groups and laboratories



Who does What in 2005

Other I:

LHC upgrade: LHC IR layout and optics studies: -> OB, RDM

ELAN & CLIC: -> HB, LN

Other II:

- CERN Summer School: -> OB (SG & EM)
- HST: -> OB (HB)
- JUAS: -> RA, OB, AL
- CAS: -> OB, AL
- Cern academic training: -> RA