

ICE SECTION

Elias Métral

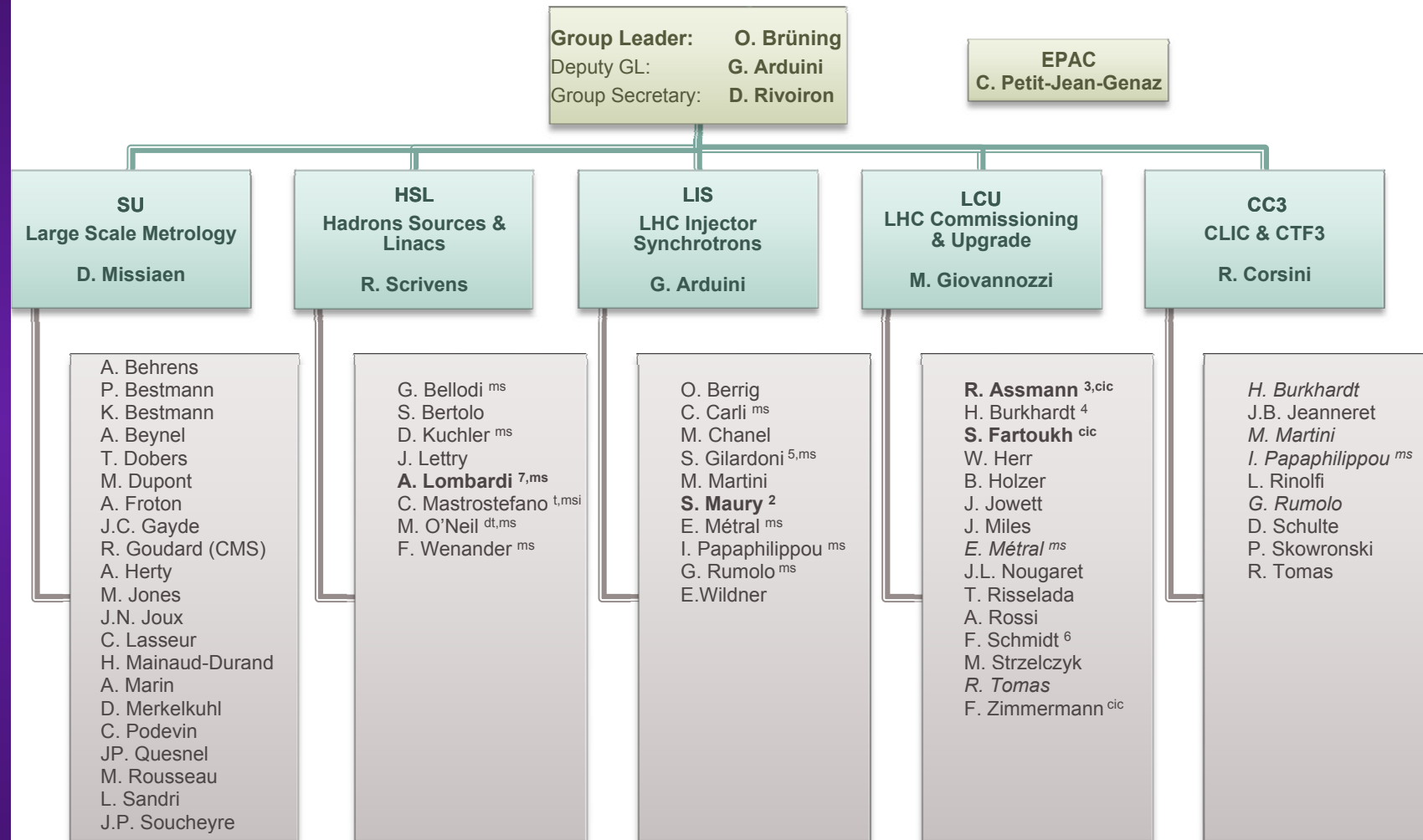
The coolest place to be!

- Does not mean **In Case of Emergency**
- Does not stand for **Immigration and Customs Enforcement** (thanks Rama!)
- Stands for **Impedance And Collective Effects**

- ◆ Old and New structure => As of July 1st, 2010 (presented by OliverB at the last group meeting on June 16th)
- ◆ Mandate of the ICE section
- ◆ Mandate of the LIS and LCU sections
- ◆ Organization

OLD STRUCTURE

BE-ABP GROUP STRUCTURE: 2010



MS: Machine supervisors
 t : TSO; dt : Deputy TSO

(1) CIC: Commissioner in charge
 (2): I-LHC Responsible
 (3): Collimation Project Leader

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 (4): Computer Administration
 (5): MTE Beam Commissioning Coordinator

(6): MADX Custodian
 (7): LINAC4 dep. Project Leader

December, 2009 D.Rivoiron

NEW STRUCTURE => NEW ICE SECTION (July 1st, 2010)

ABP Group Structure 2010

Group Leader: O. Brüning
Deputy GL: G. Arduini
Administrative support: D. Missiaen
Group Secretary: D. Rivoiron

EPAC: C. Petit-Jean-Genaz
MTE Project Leader: M. Giovannozzi
LHC Collimation: R. Assmann
LHC Phase 1 IR upgrade: S. Fartoukh
EuCard and sLHC: F. Zimmermann
LHC Background WG: H. Burkhard
LINAC4: A. Lombardi
LHC Ions: S. Maury; J. Jowett

SU Large Scale Metrology 21		HSL Hadrons Sources & Linacs	ICE Impedance and Collective Effects	LIS LHC Injector Synchrotrons	LCU LHC Commissioning & Upgrade	CC3 CLIC & CTF3
D. Missiaen		R. Scrivens ^{ms}	E. Metral	G. Arduini	M. Giovannozzi	R. Corsini
A. Behrens P. Bestmann K. Bestmann A. Beynel T. Dobers M. Dupont A. Froton J.C. Gayde R. Goudard (CMS) A. Herty	M. Jones J.N. Joux C. Lasseur H. Mainaud- Durand A. Marin D. Merkelkuhl C. Podevin M. Rousseau L. Sandri J.P. Soucheyre RET09-ABP-01	G. Bellodi ^{ms} S. Bertolo D. Kuchler ^{ms} J. Lettry A. Lombardi ^{9,ms} C. Mastrostefano ^{Lmsi} M. O'Neil ^{Lms} F. Wenander ^{ms} JB Lallement RET09-ABP-12	O. Berrig J. L' Nougaret G. Rumolo F. Schmidt E. Wildner W. Herr RET09-ABP-10	C. Carli M. Chanel S. Gilardoni M. Martini S. Maury I. Papaphilippou G. Rumolo	R. Assmann H. Burkhardt S. Fartoukh B. Holzer M. Strelczyk J. Jowett J. Miles A. Rossi R. Tomas F. Zimmermann New CC3 Post (50%)	W. Herr (60%) J.B. Jeanneret M. Martini I. Papaphilippou ^{ms} L. Rinolfi D. Schulte P. Skowronski R. Tomas (60%) G. Rumolo (40%) RET09-ABP-09

Selection board next
 Friday 16/07/2010 (BE-
 ABP-LIS-2010-48-LD)

MANDATE OF THE ICE SECTION (1/2)

- **The ICE section carries out theoretical, simulation and experimental research in the dynamics of high-intensity and/or high-brightness particle beams**
- **It analyses the collective effects limiting the performance of the PSB, PS, SPS and LHC accelerators, including beam coupling impedance, space charge, beam-beam and electron cloud**
- **The team coordinates the machine studies of the PS and SPS complex, and it also contributes to the study effort for the upgrade of the LHC injectors and to R&D activities for CLIC, Neutrino factory and Beta Beams**

MANDATE OF THE ICE SECTION (2/2)

SOME MORE PRECISIONS:

1) Beam-Beam Nominal and Upgrade is in ICE

- Responsibility for Nominal => WH

- Responsibility for Upgrade => FS

2) MAD-X responsibility => LCU

- FS is still responsible for the moment (but plan that someone in LCU takes over this responsibility)

MANDATE OF THE LIS SECTION

The LIS Section:

- Is responsible for the single particle beam dynamics studies on LEIR, PSB, PS and SPS and studies of the optics of their transfer lines as part of the performance optimization of the PS-SPS Complex. That implies participation to machine experiments and studies, follow-up of the performance and improvements for the LHC beams and the fixed-target physics beams with particular emphasis on loss and radiation minimization, new beams preparation and contribution to LEIR, PSB, PS and SPS operation supervision
- Is in charge of the design, coordination and implementation of a new multi-turn extraction scheme for the PS and studies the application of similar schemes for future upgrades of the LHC Injectors in collaboration with TE/ABT
- Studies the beam dynamics issues related to the operation of the PSB with LINAC4 and in particular to the charge-exchange injection of high intensity high brightness H- beams (e.g. space charge effects) in collaboration with the ICE section
- Contributes to the study effort for the upgrade of the LHC injectors (e.g. PS2, SPS Upgrade) and to R&D activities (e.g. Neutrino factory) in the frame of the FP7 EU Programme
- Is responsible for the coordination of the Ions-for-LHC Project

MANDATE OF THE LCU SECTION

The LHC Commissioning and Upgrade section:

- **Is responsible for the optics design and development for the nominal LHC machine**
- **Studies the mechanical aperture and magnet field imperfections of the machine as installed and impact on beam dynamics**
- **Contributes to the study of commissioning and machine operation scenarios, measurement procedures, including specifications of LHC beam parameters**
- **Provides support for the operation of the LHC during its initial commissioning phase. Participates in machine studies aimed at improving the machine performance**
- **Hosts the Project coordination for the LHC collimation system**
- **Contributes to R&D efforts related to the Phase II LHC collimation system**
- **Contributes to the study of LHC beam limitations and ways to overcome them to reach and exceed LHC nominal performance (LHC upgrade studies and LHeC)**
- **Is responsible for the development and maintenance of software tools for accelerator design and operation**
- **Contributes to and co-ordinates the EUCARD-related R&D activities (LHC upgrade studies)**

ORGANIZATION

- **Proposition to have a regular meeting every week (except when I am absent!) => Same place, same time (if possible => tbc)**
 - 1st part (closed, ~ 20 min) on general information from my side (report from SLMeetings) + hot topics etc. => Presence required
 - 2nd part (open to any people outside the section, ~ 1h20) where we have “some” presentations => Informal, to discuss all technical details of collective effects (as done in the Impedance Meetings), possibility for the students to give talks, have comments etc. and training for everyone => Presence not necessary
 - Should not last more than 1h40 in total!
 - We stop the Impedance Meetings and the discussions will take place here
 - Round table every 3 or 4 weeks
- **What is the best day? Proposition to have it on WE morning or FR morning**
- **We will start the next meetings by some status reports on the different activities of the section and future plans => LHC instabilities, BB etc.**