ALBA phase 2 beamlines: status report

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ALBA SAC meeting, 1st July 2014

Outline

- ALBA phase 2 BLs: introduction.
- Preliminary layout and description.
- Preliminary status and schedule.
- Staffing.
- Project management.
- MIRAS: some status details.
- LOREA: some status details.
- Conclusions and outlook.

Introduction

- ALBA phase 2 is here !
- History:
  - 2 BLs approved in 2009, but no budget
  - Decision to build one phase 2 BL (no extra funding) made end 2013
  - Formal approval for building two phase 2 BLs granted May 2014 (to be confirmed in July)
  - Internal funding shall be complemented with FEDER
  - Approval for recruiting of new staff included

Introduction

Beamline	Beamline use	Field of activity	Light source
MSPD BL	**P**owder **D**iffraction	Materials science	Superconducting wiggler
NCD BL	**N**on-**C**rystalline **D**iffraction	Life sciences, Materials science	In-vacuum undulator
XALOC BL	Macromolecular Crystallography	Life sciences	In-vacuum undulator
CLAESS BL	X-Ray Absorption/Emission Spectroscopies	Materials science	Wiggler
CIRCE BL	Photoemission spectroscopy and microscopy	Polarized electron spectroscopies	Helical undulator (Apple II type)
BOREAS BL	Soft X-Ray Magnetic Circular Dichroism, Resonant scattering	Polarized electron spectroscopies	Helical undulator (Apple II type)
MISTRAL BL	Soft X-Ray Microscopy beamline	Life sciences, Materials Science	Bending magnet

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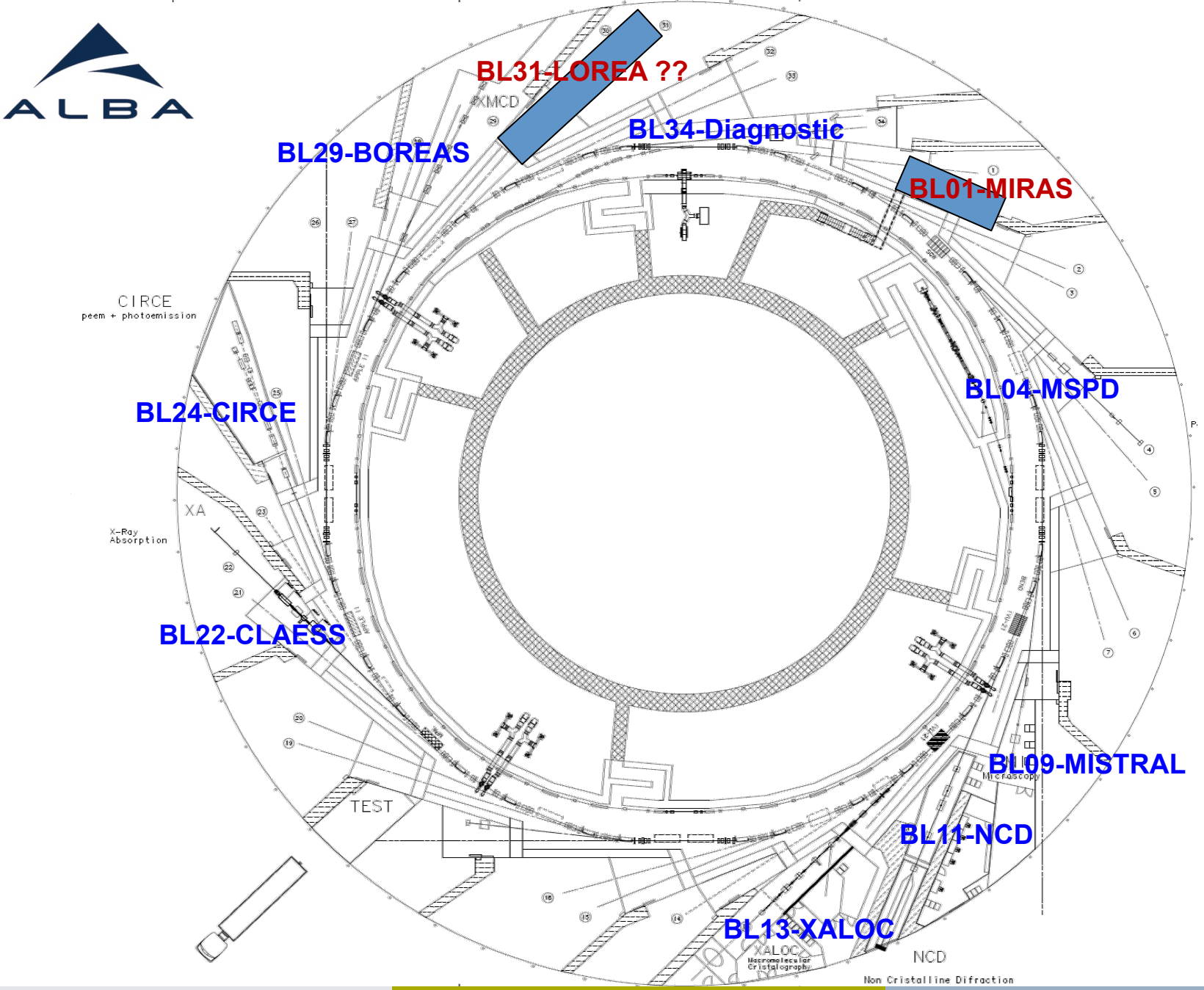
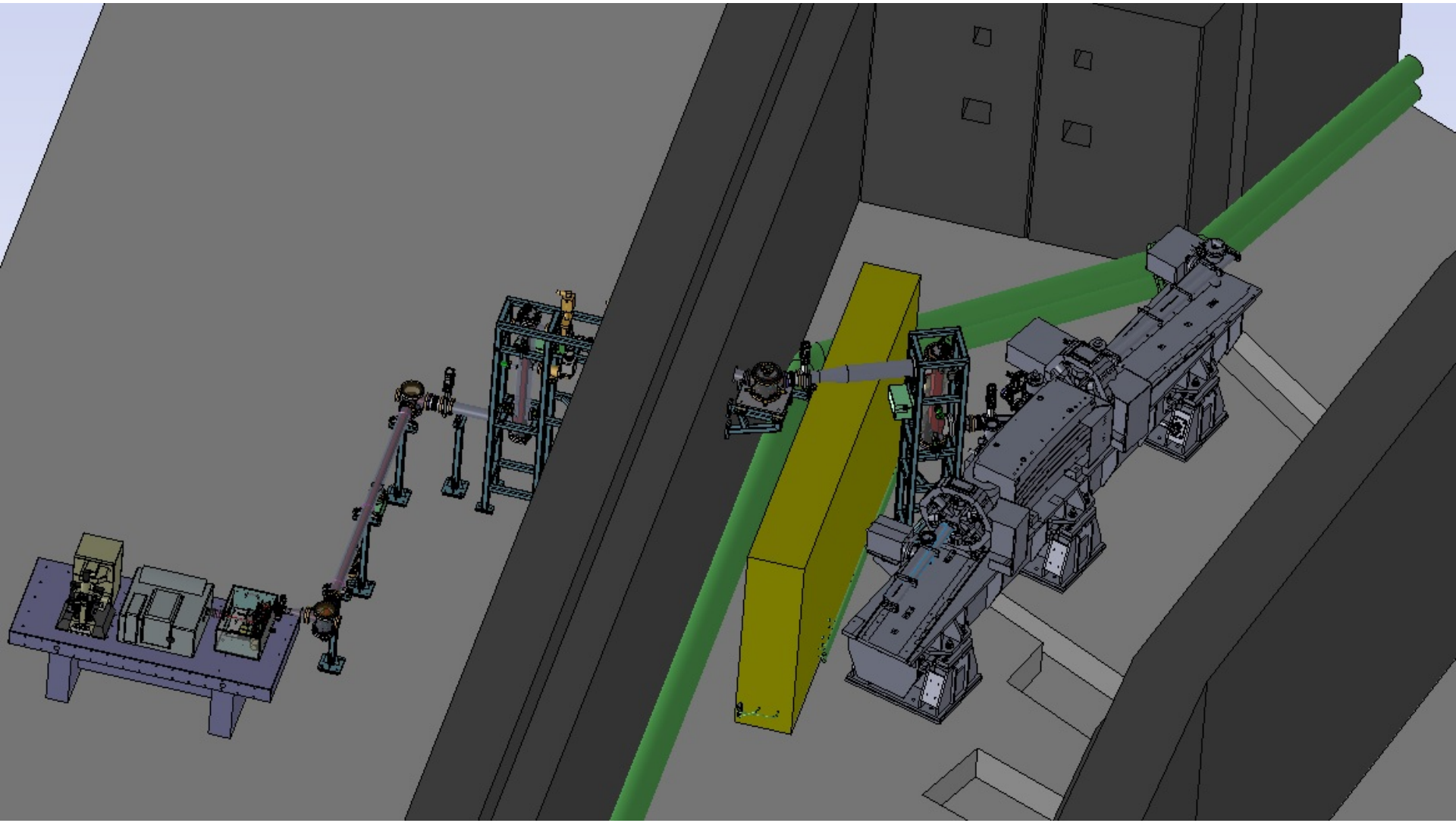
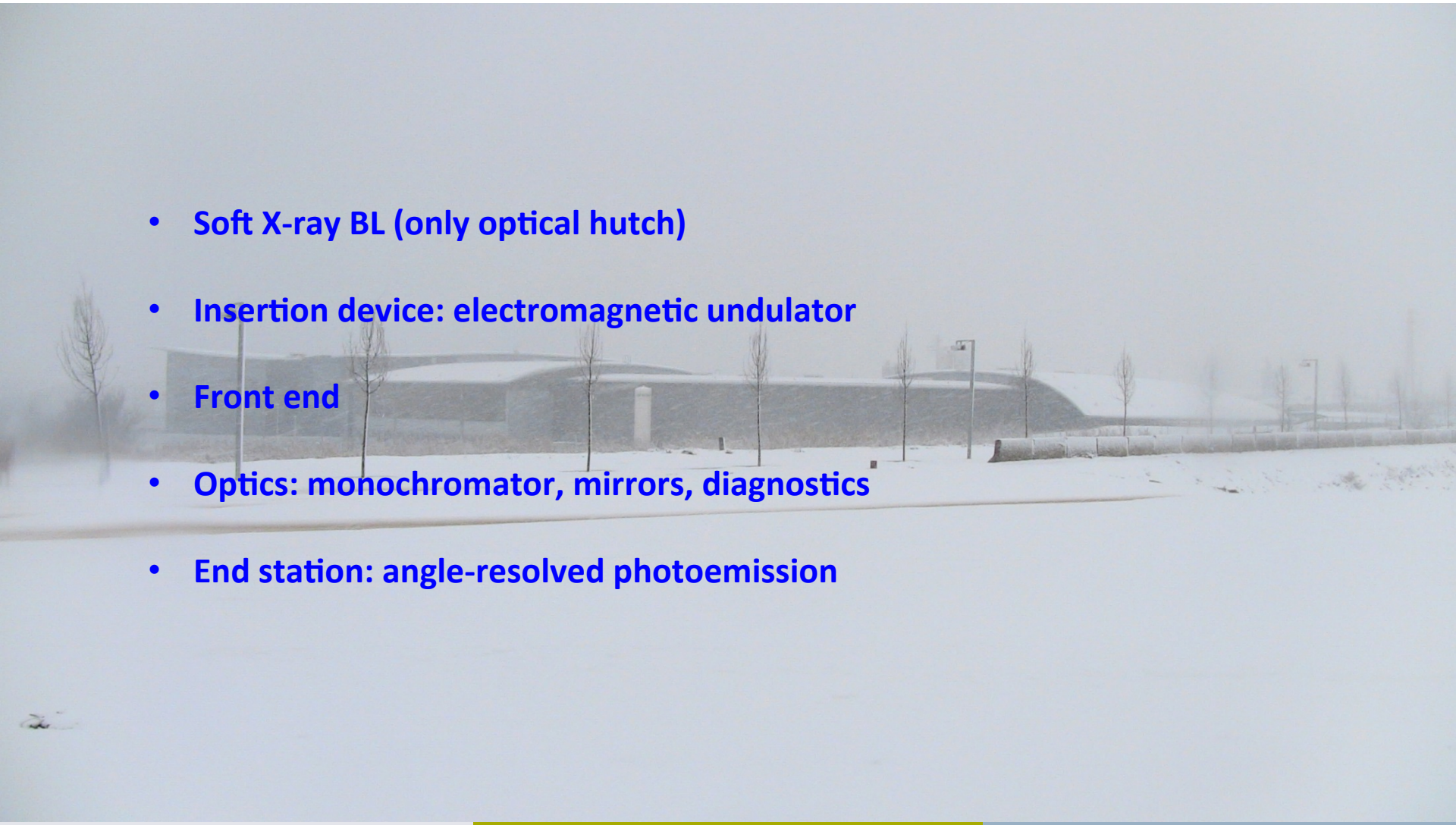
MISTRAL BL	Soft X-Ray Microscopy beamline	Life sciences, Materials Science	Bending magnet
MIRAS BL	Infrared microspectroscopy	Life sciences, Chemistry	Bending magnet
LOREA BL	Angle-resolved photoemission	Polarized electron spectroscopies	Electromagnetic undulator


BL31-LOREA ??
XMCD
BL34-Diagnostic
BL29-BOREAS
BL01-MIRAS
CIRCE
peem + photoemission
BL24-CIRCE
BL04-MSPD
XA
X-Ray
Absorption
BL22-CLAESS
BL09-MISTRAL
Microscopy
TEST
BL11-NCD
BL13-XALOC
XALOC
Macromolecular
Cristalography
NCD
Non Cristalline Difraction

MIRAS: Preliminary layout



LOREA: general description (reminder)



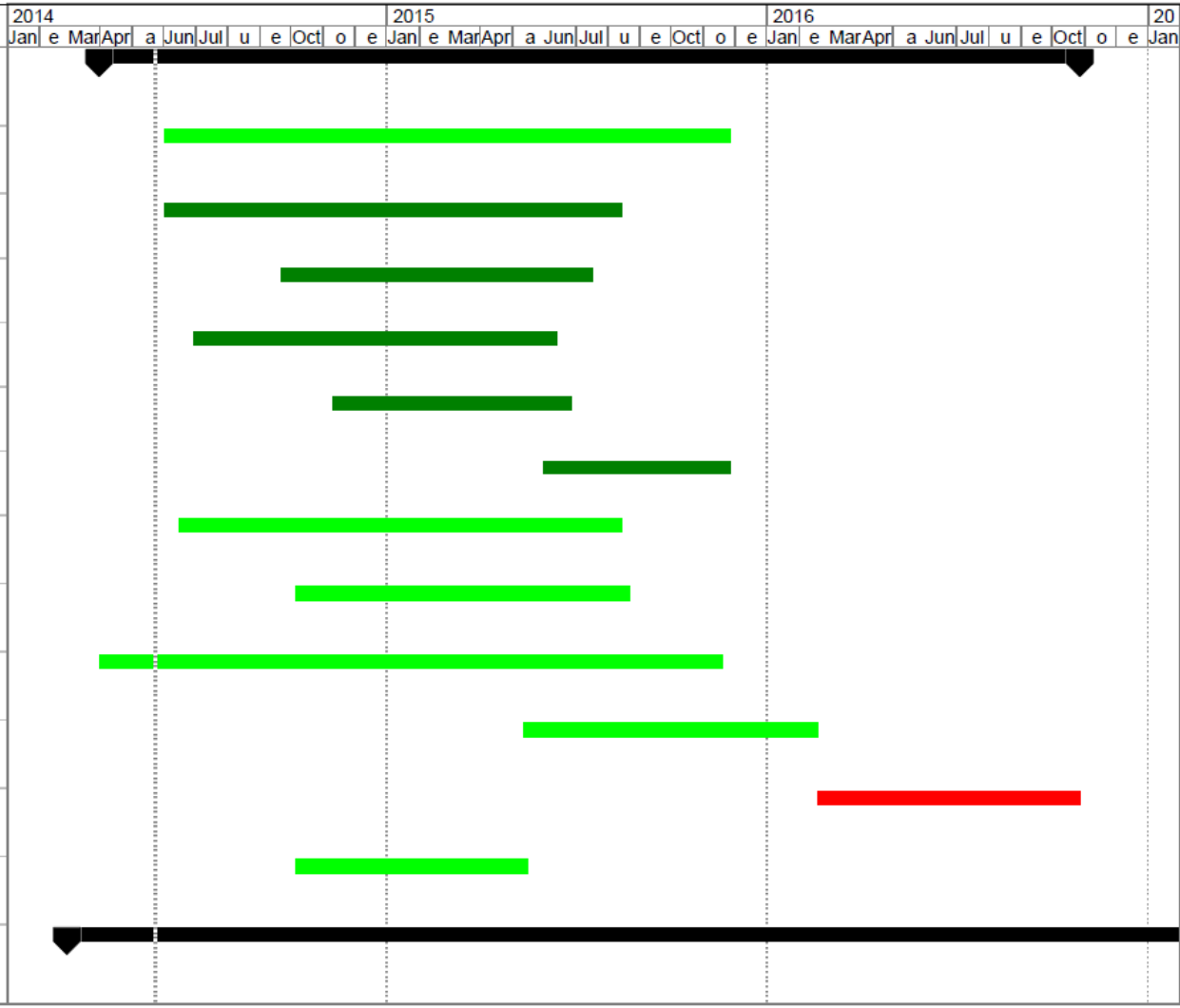
- Soft X-ray BL (only optical hutch)
- Insertion device: electromagnetic undulator
- Front end
- Optics: monochromator, mirrors, diagnostics
- End station: angle-resolved photoemission

MIRAS: Status / Schedule

- Design being done in-house.
- Many mechanical elements are to be manufactured by local workshops.
- Some tenders expected by the end of 2014: IR microscope, mirrors.
- Infrastructure is to be outsourced to companies, with global integration managed by ALBA.
- Construction should be completed within 2015.
- First users expected in 2016.

MIRAS: Status / Schedule

ID	Task Name
1	**MIRAS BL**
2	**Infrastructure**
3	**Safety hutch/PSS**
9	**Conventional hutch**
17	**Services**
25	**Computing infrastructure**
31	**Cabling**
34	**Extraction optics**
38	**Hall optics**
44	**End station**
49	**EPS and controls**
56	**Commissioning**
61	**Authorizations**
66	**LOREA BL**

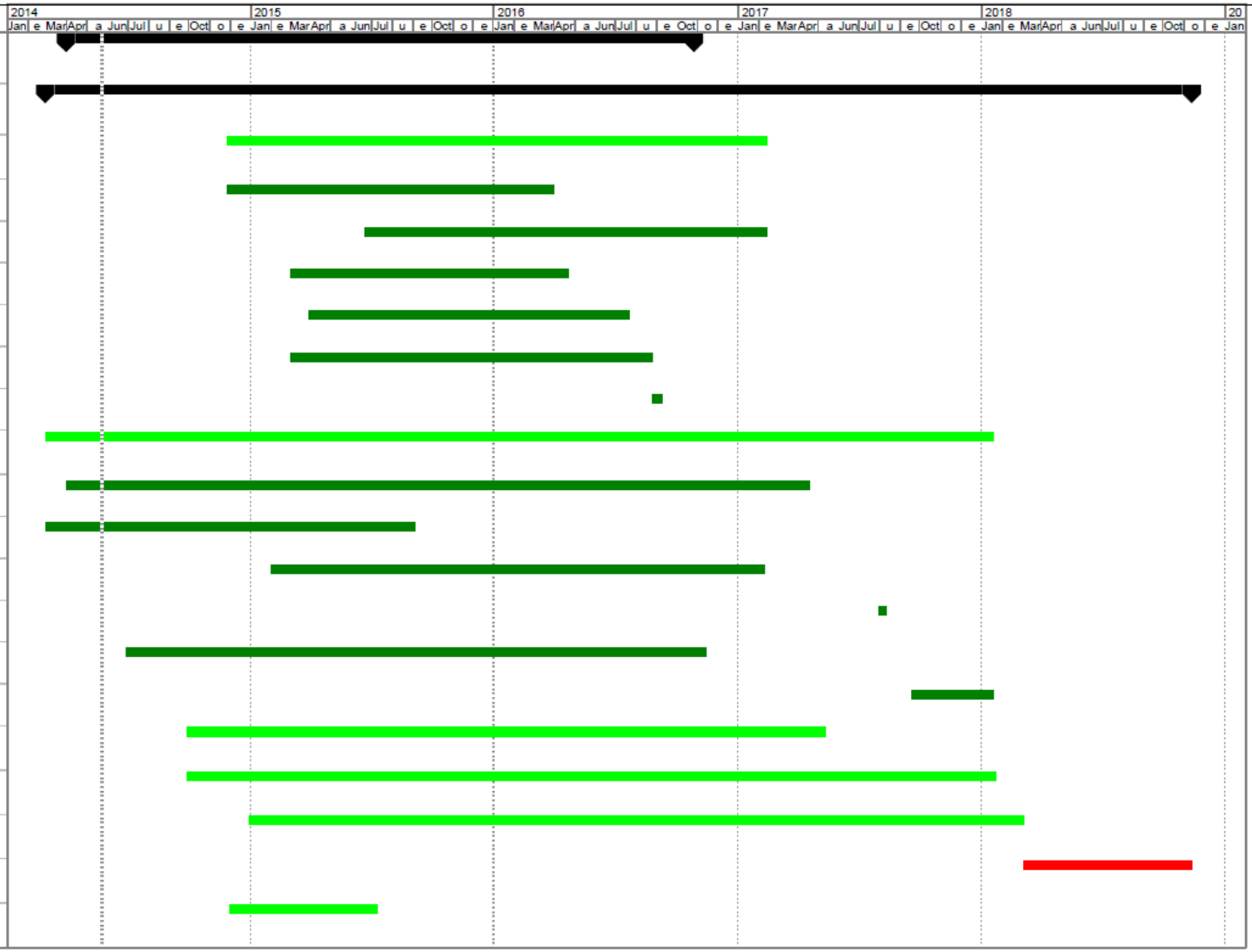


LOREA: Status / Schedule

- Design of some elements already started in 2014.
- First tenders (insertion device magnetic structure, mechanical support and power supply) may be launched by the end of 2014.
- Most tenders (front end, optics, end station) to be launched during 2015.
- Infrastructure is to be outsourced to companies, with global integration managed by ALBA.
- Manufacturing and construction should be completed during 2016-17.
- The aim is to have first users in 2018.

LOREA: Status / Schedule

ID	Task Name
1	**MIRAS BL**
66	**LOREA BL**
67	**Infrastructure**
68	Safety hutch
73	PSS
81	Conventional hutch
89	Services
97	Computing infrastructure
103	Cabling
105	**ID**
106	Magnetic structure
122	Mechanical support
130	Vacuum chamber
134	ID installation in the tunnel
135	Power supply
142	Ancillary
147	**Front end**
159	**Optics**
170	**End station**
181	**Commissioning**
186	**Authorizations**



Staffing

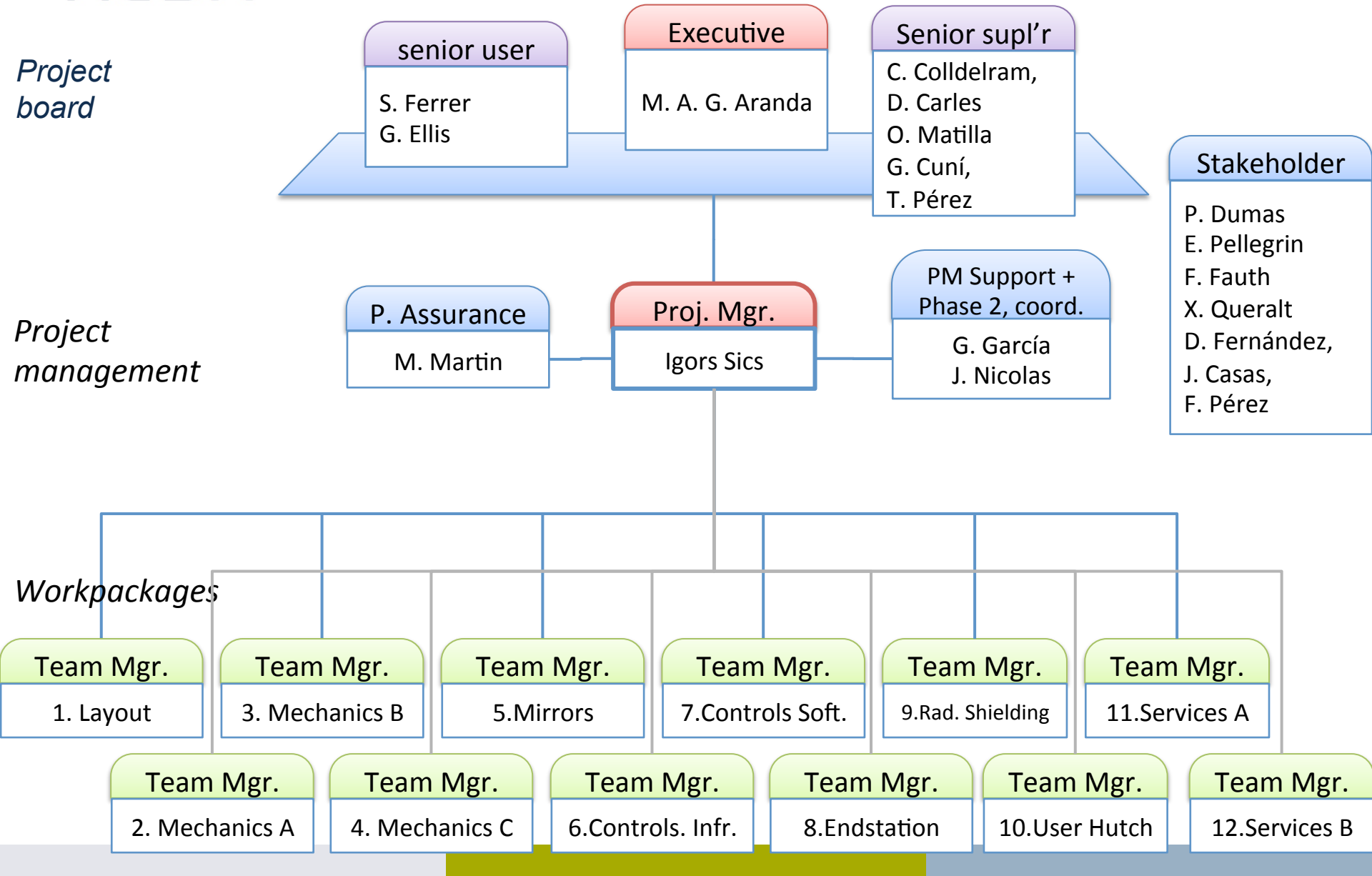
- **New staff approved**
  - MIRAS: 2 BL scientists (2014) + 1 BL scientist (2015)
  - LOREA: 2 BL scientists (2014) + 1 BL scientist (2016)
  - 1 Postdocs per BL when in operation
  - Support divisions: 2 positions (2014) + 1 position (2015)

- **Status**
  - 2 x BL responsible positions open: incorporation expected by Sep. 2014
  - 1 x support position filled in Computing
  - 1 x support position open (Engineering): incorporation expected by September 2014
  - 4 BL scientist + 1 support positions to be open from 2015 onwards
  - 2 Postdocs when BLs enter operation (2016 and 2018)

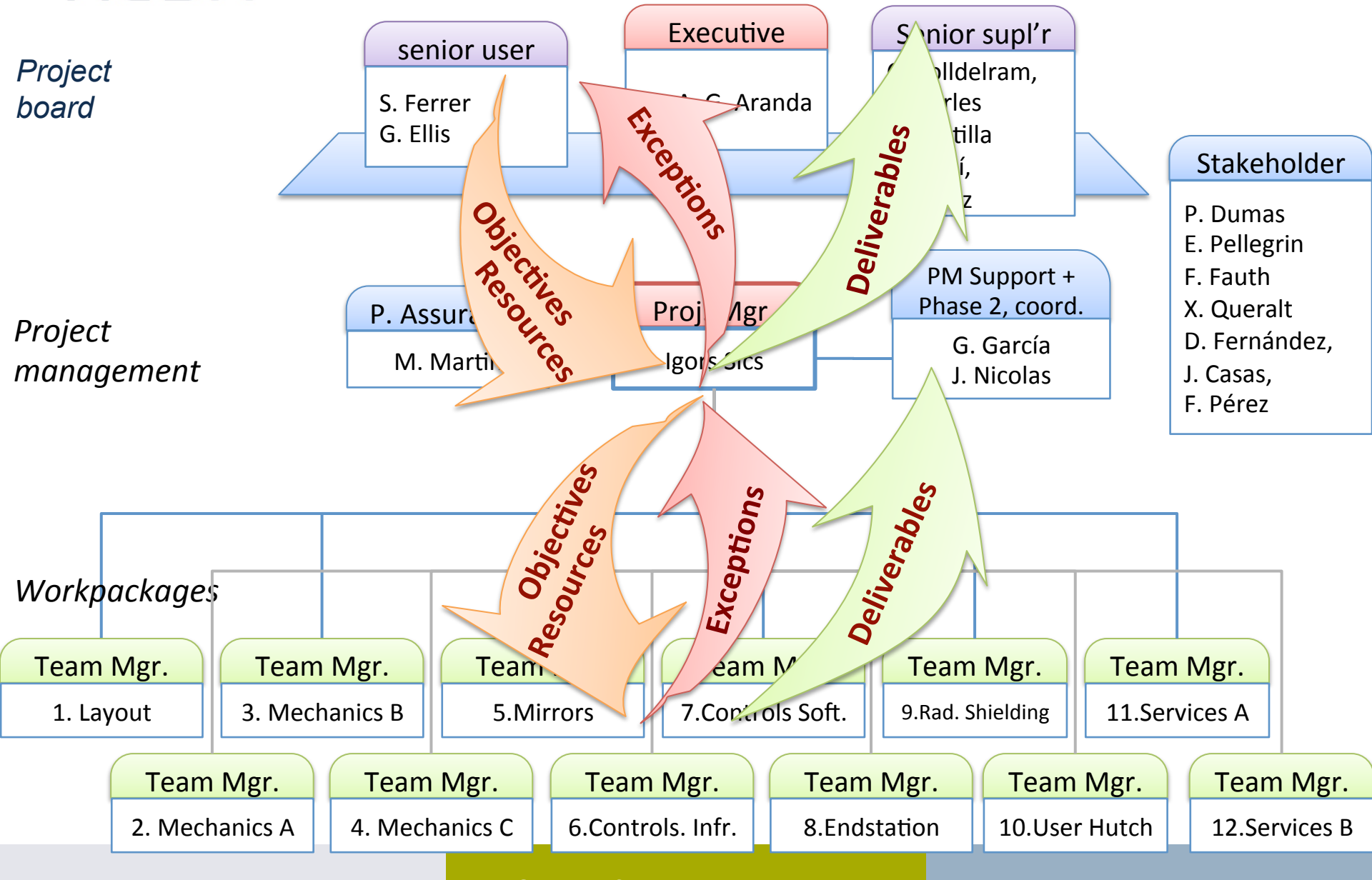
Project management

- ALBA phase 2 beamline construction is managed according to PRINCE 2.
- In comparison to phase 1, more in-house developments, integration and installation require also more in-house management of BL projects.
- Areas of expertise have been consolidated at ALBA, which can assume resposibility on parts of the BL project.
- Tight budget and time constraints on BL project.

Project management: organization



Project management: organization

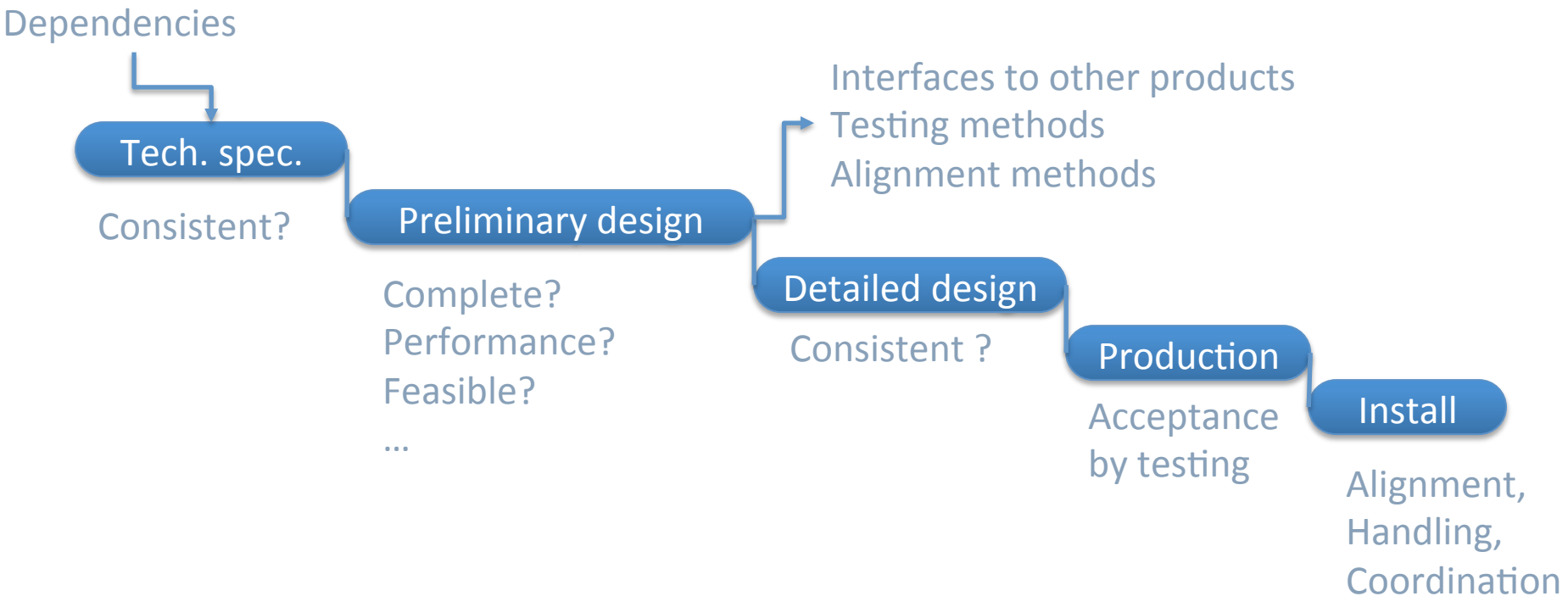


MIRAS Workpackages

Count	Workpackage	Team Mgr.	Brief description
1	Optics Layout	I. Sics	*Conceptual design of the BL*
2	Vacuum+Mecanics A	L. Ribó	*Mechanics of the extraction mirror*
3	Vacuum+Mecanics B	L. Ribó	*Mechanics of the rest of mirrors inside the tunnel*
4	Vacuum+Mecanics C	L. Ribó	*Mechanics of the rest of mirrors outside the tunnel*
5	Mirrors	I. Sics	*Mirrors themselves*
6	Controls infrastructure	O. Matilla	*Computers, rack components, PLCs, etc.*
7	Controls Software	F. Becheri	*Control software, EPS, PSS, standard and custom*
8	Endstation	I. Sics	*Microscopes + FTIRs + Matching unit + Ancillary*
9	Radiation Shielding	C. Orozco	*Wall feedthrough, Lead cabinet + PSS (if needed)*
10	User Hutch	N. Martí	*Hutch, Lighting, HVAC, Furniture*
11	Services A	N. Martí	*Mechanical supports, Electrical installation, fluid and gas supply*
12	Services B	O. Matilla	*Trays, Control Cabling*

Workpackage composition

- Each workpackage includes several deliverables ('products')
- The precise definition of those is part of the planning and is agreed between PM and TM
- For each product one details: Purpose+composition, dependencies, resources needed and acceptance method.
- Typical products in a package are



Conclusions

- ALBA is moving on with phase 2 BLs
- MIRAS well advanced (users expected for 2016)
- LOREA being launched (users expected for 2018)
- Project management based on phase 1 experience + improved practices


Thanks for your attention !