

# Accelerator Physics, Beam Instrumentation and Ion Source Group

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Accelerator Advisory Committee

May 2013



# Beam Instrumentation Systems Responsibility

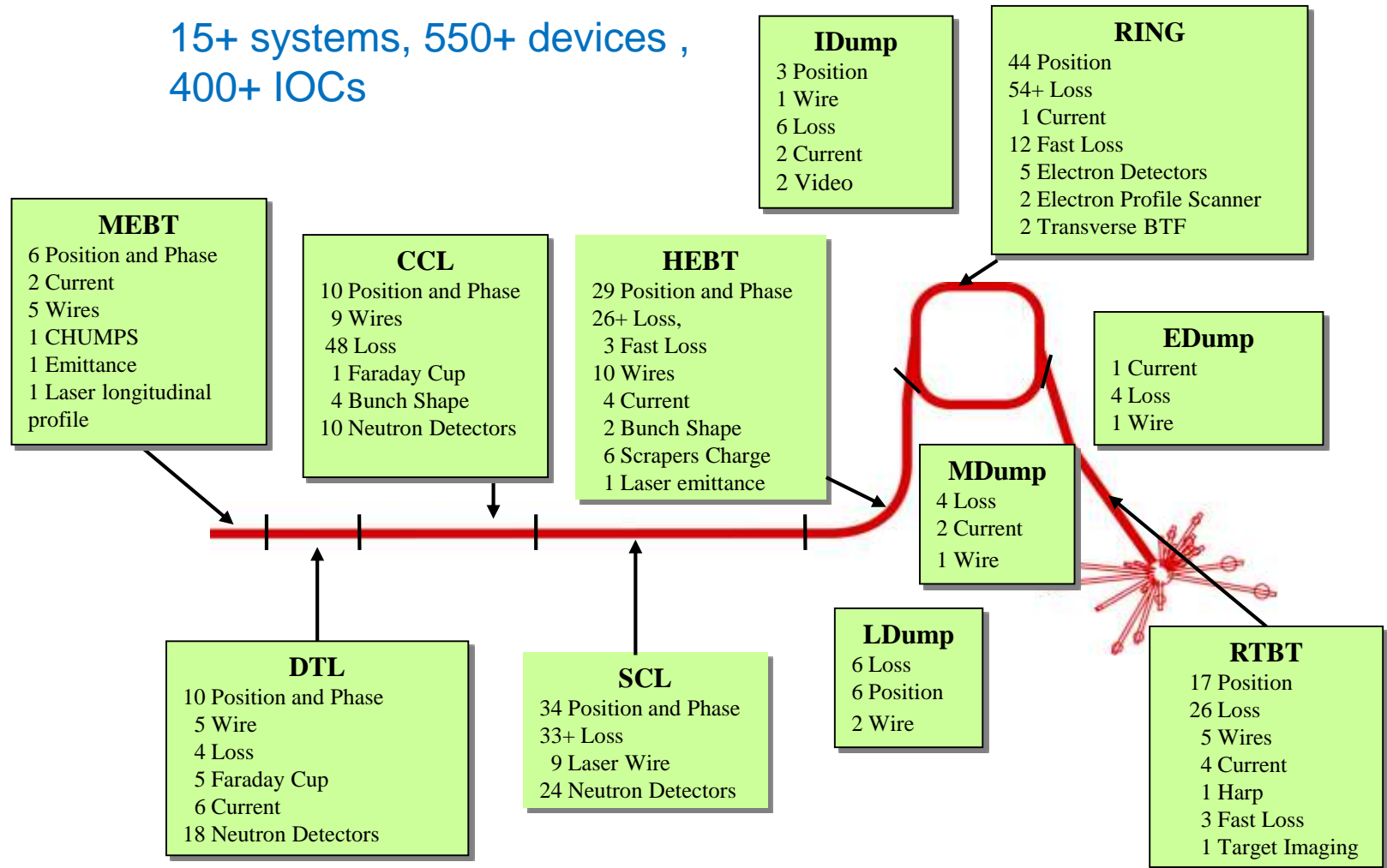
- Maintain 15+ varied accelerator systems
- Maintain some Target instrumentation
- Some sample environment support
- Develop new cutting edge measurement techniques
- Support auxiliary equipment
  - New scrapers, laser stripping, ...

# Accelerator Physics Systems Responsibility

- Intellectual ownership of machine
  - Warm linac and ring area managers
  - Propose equipment upgrades needed for power increases and performance improvements
- Manage and perform beam studies
- Maintain and develop software systems (XAL, ORBIT)
- Machine turn on (after extended maintenance)
- Represent SNS in the accelerator community

# Beam Instrumentation Systems Responsibility

15+ systems, 550+ devices ,  
400+ IOCs



# Ion Source Systems Responsibility

Ion source + LEBT on machine

- Change + refurbish 1/month

Test Stand in Front End

- Source R&D
- New configuration ~ 1/month

New Integrated Test Stand support

- Source assemblies
  - 3 production H- sources each capable of 1 MW
  - 2 test ion sources for source development on test stand
  - 2 external antenna sources for source development on test stand
- 4 electrostatic LEBTs for production, spares and testing
- Power Supplies / RF
  - 36 high voltage supplies: 11 for production, 12 spares, and 13 for testing
  - 3 matching networks
  - 4 13 MHz supplies
- 3 hydrogen control systems + 3 Cs heaters
- ~3 complete vacuum systems
- Instrumentation
  - 4 RGA's
  - 3 optical spectrometers
  - Emittance

# Staff & Budget

FY13 budget = \$9M (\$7.5 labor, \$1.5 M&S )

- Physics: 8 staff, 1 student
- Beam Instrumentation: 7 staff, 4 techs, 1 post-doc, 2 students
- Ion source: 3 staff, 3 techs

**Accelerator Physics, Beam Instrumentation and Ion Source**  
**J. Galambos, Group Leader**  
K. Hall, Administrative Assistant

## Accelerator Physics

M. Plum	Acc. Physics Team Leader
S. Cousineau	Physicist
S. Danilov	Physicist
M. Doleans <sup>3</sup>	Physicist ← SRF group
T. Gorlov	Physicist
J. Holmes	Physicist
A. Shishlo	Physicist
T. Pelaia II	Physics Appl. Team Leader
C. Allen	Physics Applications
R. Potts <sup>4</sup>	Student

## Beam Instrumentation

A. Aleksandrov	Team Leader
W. Blokland	Engineer
C. Deibele	Engineer
R. Dickson	Engineer
Y. Liu	Engineer
C. Long	Engineer
A. Zhukov	Engineer
C. Huang <sup>4</sup>	Post-Doc
D. Bartkoski <sup>4</sup>	Student
Z. Xie <sup>4</sup>	Student
A. Webster	Team Leader
J. Bryan	Technician
J. Diamond	Technician
S. Murray III	Technician

## Ion Source

M. Stockli	Team Leader
B. Han	Physicist
R. Welton	Physicist
S. Murray Jr.	Technician
T. Pennisi	Technician
M. Santana	Technician

# Potential issues for the future

- Retaining staff and keeping them engaged to keep the beam running at record power levels and be able to deal with upgrade issues
  - Need to develop independent funding
- Ion source reliability at higher current and duty factor
- Instrumentation parts obsolescence