

Electrical and RF Systems Group

Mark Champion, Group Leader

AAC Meeting, 7-9 May, 2013



Group Responsibilities

Operate, Maintain, and Improve the following accelerator subsystems:

- RF systems
 - ~100 stations at 1, 2, 13, 402.5, and 805 MHz
- High voltage converter modulators
 - 15 modulators in the Linac, operating from 71 to 135 kV, plus 2 modulators in test stands
- LEBT & MEBT beam chopper power supplies
- Injection & extraction kicker power supplies
- Magnet power supplies
- AC power distribution
 - from site substation to point-of-service panels

Group Responsibilities

Provide Electrical and RF support throughout Neutron Sciences:

- Instrument Development, especially motion control
- Electrical & RF Support
 - Target and Neutron Beamline Instruments
 - Central Utilities and Cryogenic Plant
 - Superconducting Linac Systems
 - Ion Source, Beam Diagnostics, Mechanical Systems
 - Accelerator Physics, Controls

Choppers, Kickers, & Magnets: 551 pulsed and DC supplies; 402 interface chassis

Units by Type	QTY	Description
Front End Correctors	12	Kepeco
LEBT Chopper System	4	DEI +/- 3kV 1 MHz pulser
MEBT Chopper Systems	2	DEI + 3 kV 10 ns Pulser
MEBT Quads	10	Magna 4 Types
Correctors	340	Danfysik +/- 20A
Linac Quads	82	IE Power Various
Shunted Systems	40	Shunt regulator for CCL quads
SCL Quads	39	Alpha 0-35V
Extraction Kicker Systems	14	BPFN
Injection Kicker Systems	8	IE Power 1400 Amp Analog pulsed
Total	551	
Power Supply Interface (PSI)	402	
Units by Area		
RTBT	60	
RSB	204	
HEBT	43	
SCL	80	
CCL	54	
DTL	74	
FE	27	
Linac Dump	8	
Extraction Dump	1	
Total	551	

Electrical and RF Systems Group

Mark Champion, Group Leader

Lois Brown, Group Admin

RF Systems

Mark Crofford, Manager

Front-End and Ring RF

Chip Piller, Lead Engineer

Tom Hardek

Mike Clemmer

Linac RF

John Moss, Lead Engineer

(Tom Hardek)

Mark Cardinal

Dale Heidenreich

Low-Level RF

(Mark Crofford), Lead Engineer

Taylor Davidson

Sung-Woo Lee

(Chip Piller)

Jeff Ball

Stacey Jones

RF Structures

Yoon Kang, Lead Engineer

Sasha Vassioutchenko

Rob Peglow

Managers: 1

Engineers: 7

Technicians: 6

FY13 Budget:

- Labor \$11.545M

- M&S \$6.280M

Electrical Power Systems, Accelerator & Target Support, and Instrument Development

Kevin Norris, Manager

William Barnett, Integration Manager

Electrical Power Systems

(Kevin Norris), Lead Engineer

(John Moss)

Dan Hall

Randy Williams

Instrument Development and Target Support

Ben Cagley, Team Lead

Alex Groff

Ryan Morgan

Ron Conn

David Cord

Darrel Lively

Bert Love

Tim Psensky

Phil Walker

Accelerator Support

James Bullman, Team Lead

Steve Brown

Benny Cole

James Hopkins

Mike Littleton

Gary Mills

Tim Miner

Chris O'Malley

Chris Parton

Harold Toy

Sandra Wyatt

Managers: 4

Designers: 2

Technicians: 4

Craft: 14

High Voltage, Pulsed Power, and Magnet Systems

David Anderson, Manager

HV Converter Modulator

(David Anderson), Lead Engineer

(Gunjan Patel)

Vladimir Peplov

Dennis Solley

Mark Wezensky

Ken Fowkes

Jim Hicks

Josh Singleton

Power Supplies, Kickers, Choppers, and Special Projects

Robert Saethre, Lead Engineer

Gunjan Patel

(Dennis Solley)

Joey Weaver

Managers: 1

Engineers: 5

Technicians: 4

Total: 50

Managers: 7

Admin Asst: 1

Designers: 2

Engineers: 12 (+4)

Technicians: 14

Craft: 14

Key:

- (matrixed)

Spares, Maintenance Planning, Risks

- Technical Teams are responsible for maintenance of adequate spares for their subsystems.
- Likewise, the Teams are responsible for maintenance planning.
- The Integration Manager gathers and organizes the labor requirements so that we can distribute our resources efficiently throughout maintenance periods.
- Risks (Concerns)
 - Failure to maintain adequate key spares; obsolescence
 - Physical Integrity of NC Linac structures (vacuum, water, RF windows)
 - Variability of SC Linac klystron lifetimes
 - Not enough resources during maintenance periods
 - Performance of NC Linac (errant beam, nuisance trips)
 - Lack of critical skills and/or depth in some technical areas
 - No on-call policy