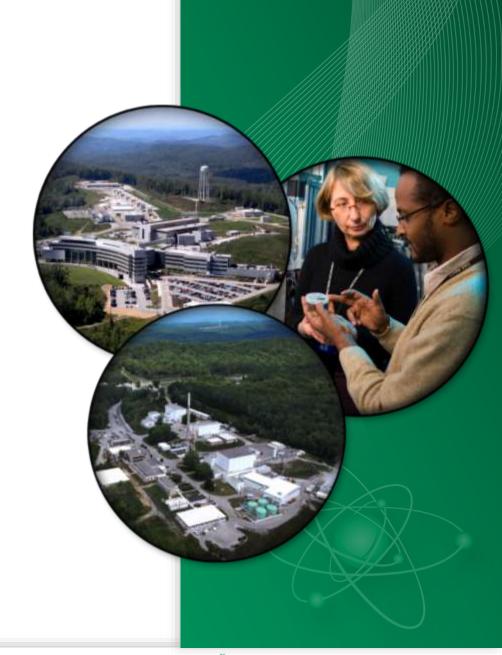
Electrical and RF Systems Group

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	Керсо	
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

Managers: 4

Designers: 2

Craft: 14

Technicians: 4

Steve Brown Benny Cole James Hopkins Mike Littleton

Mike Littleton Gary Mills Tim Miner

Chris O'Malley Chris Parton

Harold Toy Saundra Wyatt 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

Power Supplies, Kickers, Choppers, and Special Projects Robert Saethre, Lead Engineer Gunjan Patel (Dennis Solley) Joey Weaver

Managers: 1 Engineers: 5 Technicians: 4

Josh Singleton

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