

John Dainton
Cockcroft Institute
"scRF for Europe"
CERN June 14th 2006

scRF in the UK



THE COCKCROFT INSTITUTE of
ACCELERATOR SCIENCE AND TECHNOLOGY

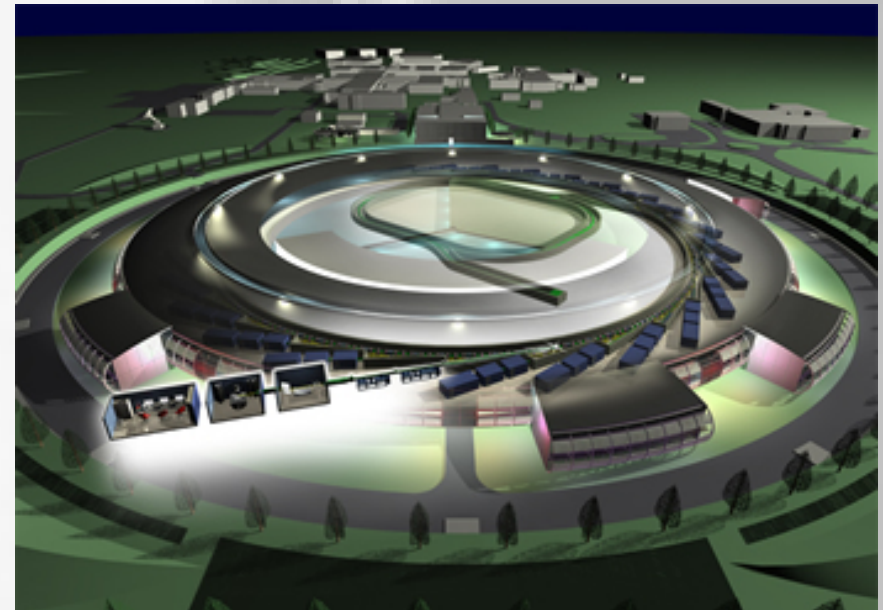
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and Rutherford Appleton Laboratories
Accelerator **S**cience and **T**echnology **C**entre



DIAMOND Light Source



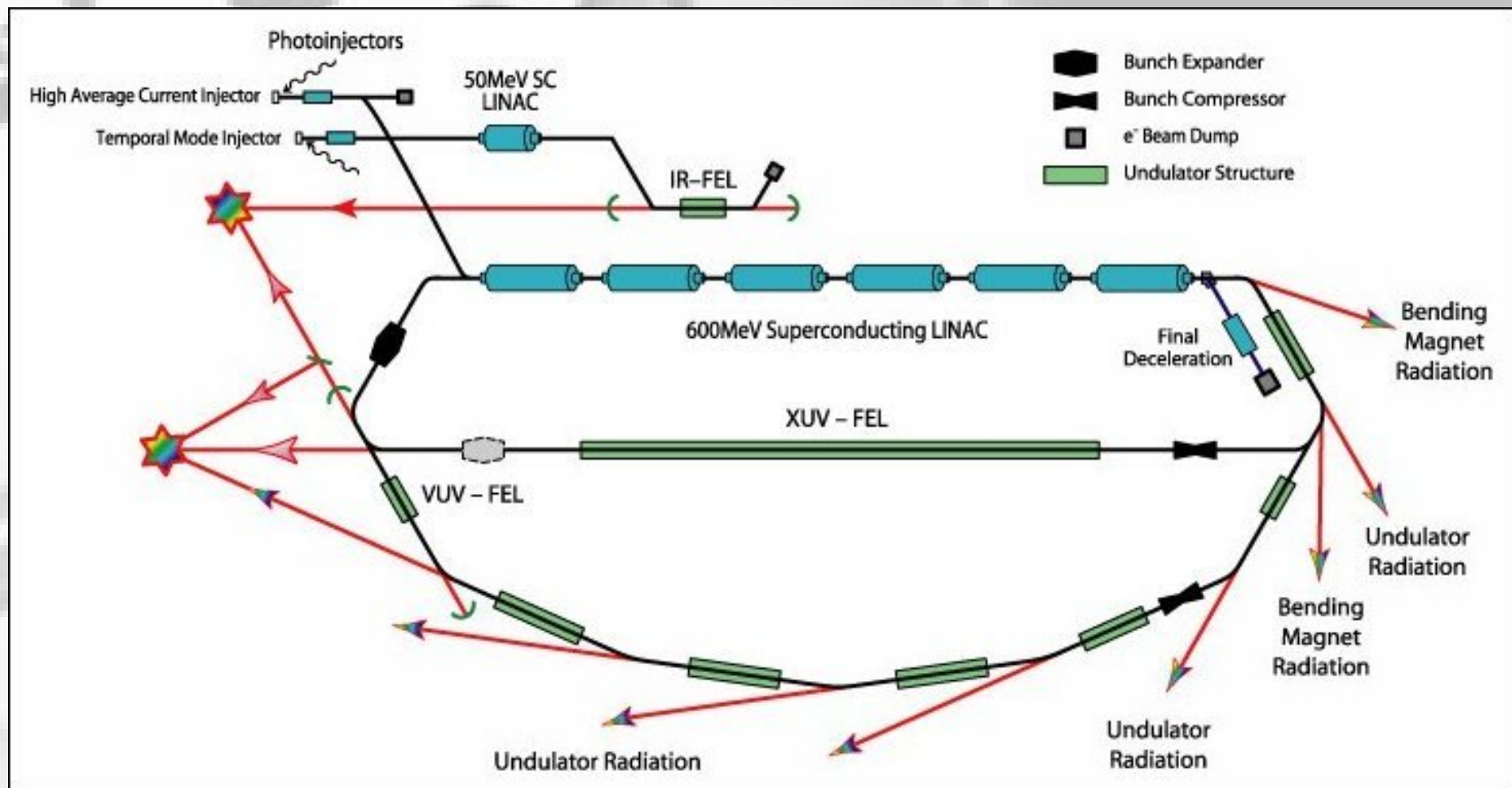
- 3 single cell cavities
each cavity ≤ 200 kW
 ≤ 2 MV/cell
redundancy
IOTs in combination
- 500 MHz
- off the shelf ACCEL
 - Cornell design
- 4K "standard cryogenics"
- operation imminent



scRF Linac Structure R&D



- 4GLS: Daresbury 2011?



scRF Linac Structure R&D



<http://www.4gls.ac.uk/ERLP.htm>

- ERLP: 2000077

- 9 cells/cavity
- 2 cavities/module
- 2 modules

1 injection: low gradient 4 MV/m - on site

1 ERL: high gradient ≤ 15 MV/m - imminent

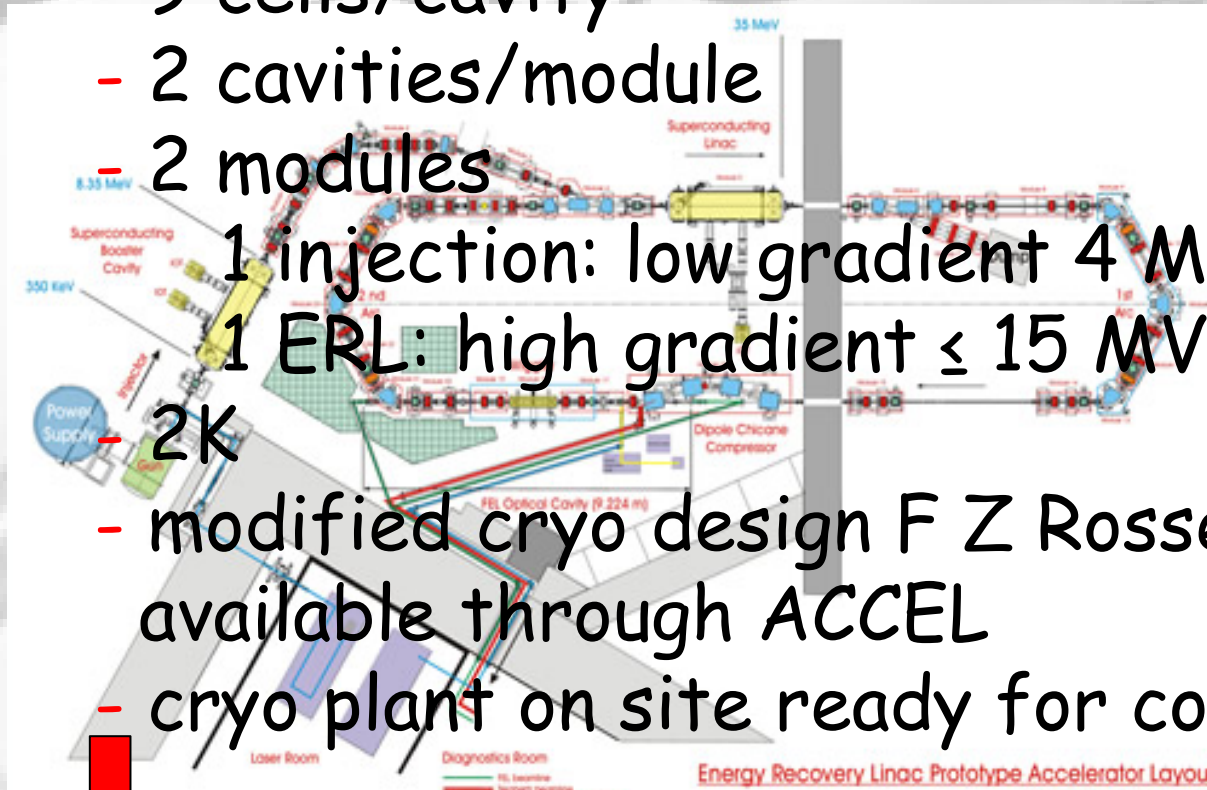
- 2K

- modified cryo design F Z Rossendorf
available through ACCEL

- cryo plant on site ready for commissioning 9/06



R&D energy recovery



scRF Linac Structure R&D



<http://www.4gls.ac.uk/ERLP.htm>

- ERLP 2007
 - losses (microphonics):
improvement programme
 - collaboration with Cornell
(Stanford and Berkeley)
improved cryo module \leq 18 months
 - cryo plant on site ready for commissioning 9/06



scRF Linac Structure R&D Future



- infrastructure @ Daresbury/Cockcroft Institute
 - design: physics and engineering
on site physics and engineering
Cockcroft Institute with ASTeC ✓
 - manufacturing and processing
infrastructure @ €10M
no success (yet!) with UK agencies ?
 - testing
high power equipment on site ✓