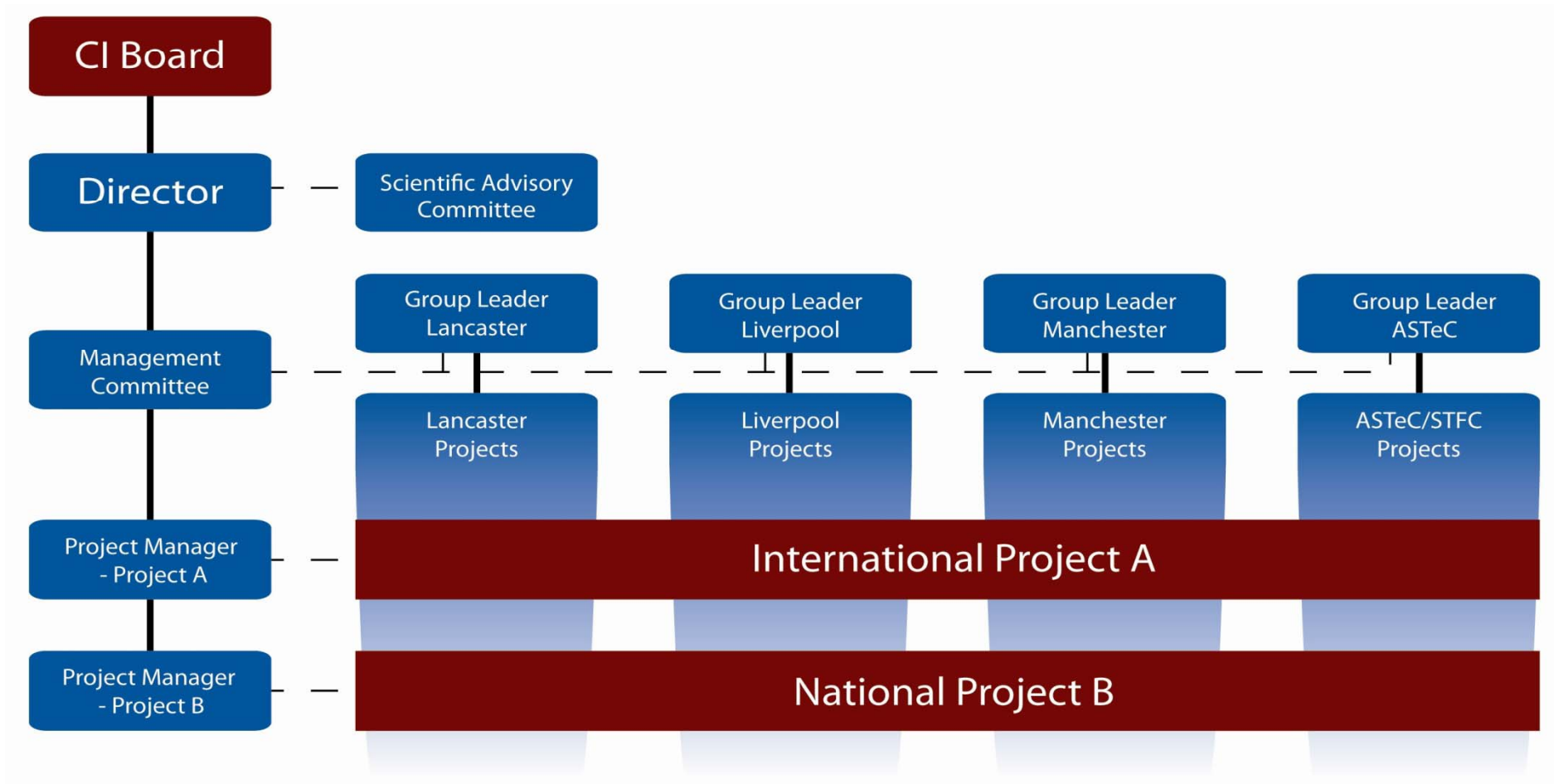


# CI Structure



# RF at the CI

## Lancaster University Engineering Department

Professor Richard Carter (Academic)

Amos Dexter (Academic)

Graeme Burt (Academic)

Imran Tahir (Research Associate Electronics)

Praveen Ambattu (Research Associate RF Engineering)

Jonny Smith (Research Associate RF Engineering)

+ 3 PhD students

## ASTeC (RF Group)

Peter McIntosh (RF Group Leader)

Carl Beard (Senior RF Scientist)

Andy Moss (Senior RF Engineer)

Shrikant Pattalwar (Senior Cryogenic Engineer)

Rob Smith (Senior Diagnostic Engineer)

+ 10 other technical staff

## Manchester University Physics Department

Roger Jones (Academic)

+ 2 RAs and 2 PhD students



# Lancaster RF Group Expertise

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## Primary

- Modelling of microwave tubes (klystrons, magnetrons, TWTs, IOTs)
- Dipole deflection and crab cavity design

## Secondary

- Design of passive RF components, cavities and couplers
- Multipactor
- LLRF
- RF measurements
- Heat Transfer and Stress Analysis
- Mathematical modelling and code development

## Additional Facilities in Engineering Department

- Light manufacture
- Mechanical design and drawings

## Science and Technology Large Facilities Council (STFC)

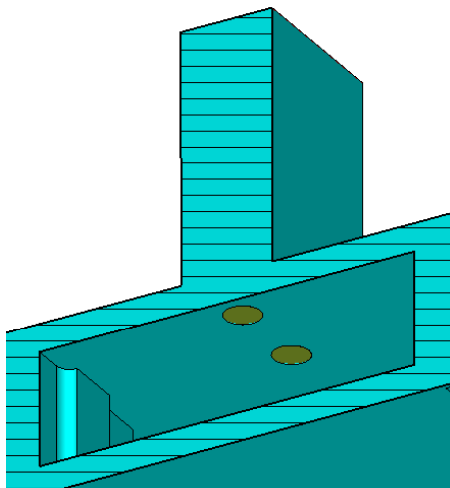
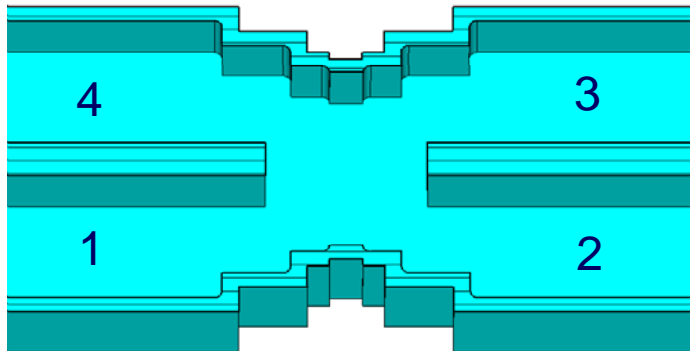
- Core Grant for CI
- Project Grants
  - LC-ABD (Cut)
  - HIE-ISOLDE (submitted)
  - FFGA – EMMA (Manchester and ASTeC)
  - NLS – ALICE (ASTeC)
- PIPPS Industry Programme Support Scheme
  - Could potentially provide funding for prototyping with UK industry
  - UK passive component manufactures Credowan and Q-par Angus have expressed interest in becoming involved.

# My initial WG1 SPL Questions

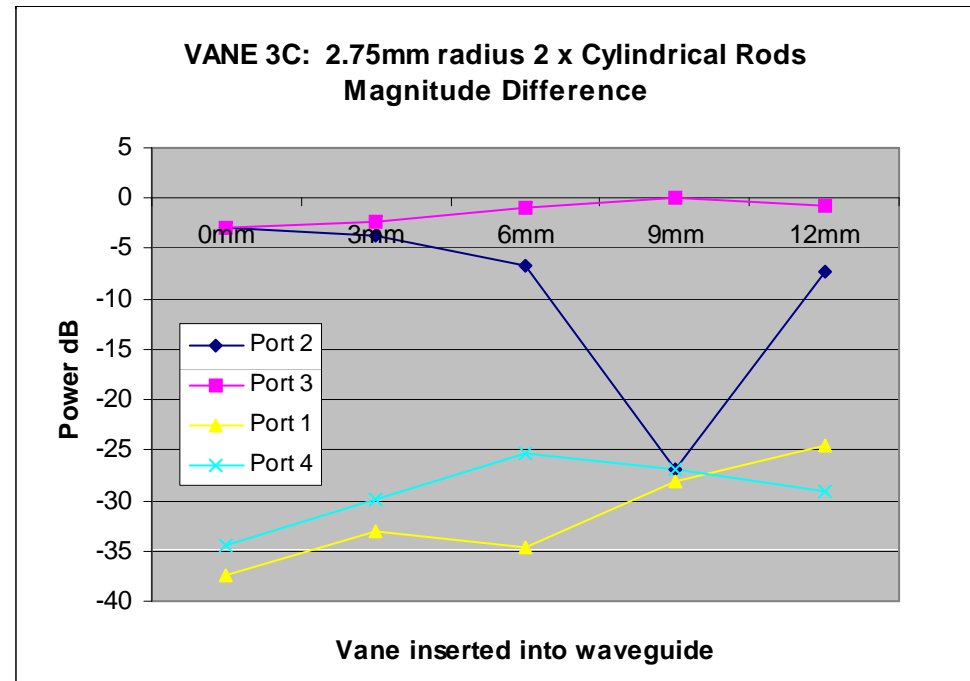
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1. How many cavities per klystron 4, 8 or 16 ?  
(or do we need a design for each so we can decide later)
2. Is there potential for the compact FLASH layout shunt tee splitters to be variable?
3. Variable splitting with Riblet couplers and magic tees has been proposed, is this a route to pursue?  
(B. Bogdanovich et al, EPAC 2002)
4. Has a high power phase shifter already been developed?  
(Fast Ferrite Phase Shifters for High Power Applications, Y. Kang, Argonne SNS)

# Lancaster Variable Coupler Model



Uses ceramic rods for power handling and two so tubes are well beyond cut-off



# What might Lancaster Contribute ?

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## With current resources

- Design of variable splitters
- Modelling of complete distribution system
- Review klystron design
- Specify protection requirements
- Assist testing of components

## With additional resources

- Overall layout and project management
- Identify component suppliers and validate solutions
- Mechanical drawings