

# EiC UK - PPD

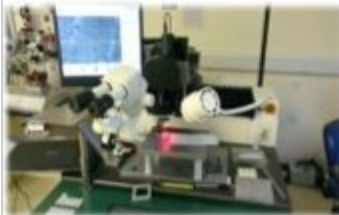
Facilities, People, Possible work areas

Fergus Wilson, RAL – PPD

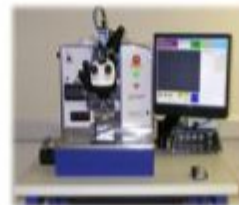
EiC UK meeting, Liverpool, 28 June 2023



- Multiple cleanrooms
- Multiple wire-bonders
- Bump-bonders
- Inspection equipment
- Metrology lab
- 3-D printing facilities



**Aluminium wedge bonders.**  
Above: Hesse and Knipps Bondjet 715M  
Right: Hesse and Knipps Bondjet BJ820



**Gold ball bonders.**  
Left: Palomar 8000  
Above: Questar Q2119

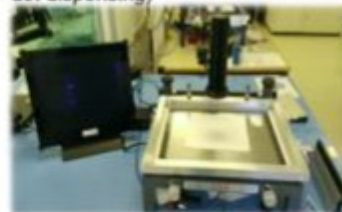
**Pull/shear tester.**  
XYZTec Condor 100



**Inspection microscopes.**  
Above: Vision engineering Lynx  
Below-left: Smartscope 250  
Below: Keyence VHX1000



**Conductive epoxy deposition.**  
Left: Asymtec serial dot dispenser  
Below: Screen printing (parallel dot dispensing)



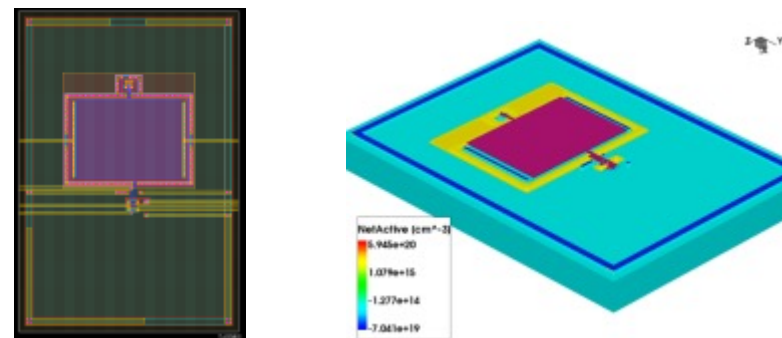
**Indium bump depositor.**  
Above: JLS Designs MPS800

**Flip chip bonder.**  
Below: SET  
FC150

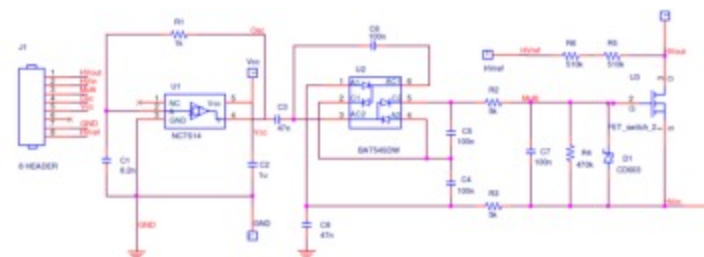


## PC farm for Synopsys TCAD simulations

## PC fam for Cadence ASIC design



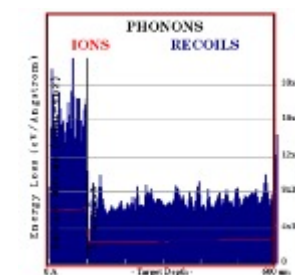
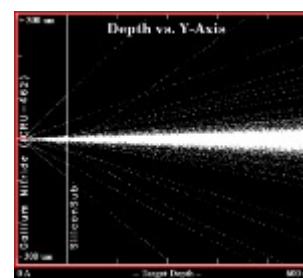
## Orcad – PCB design and SPICE simulation (HVMUX)

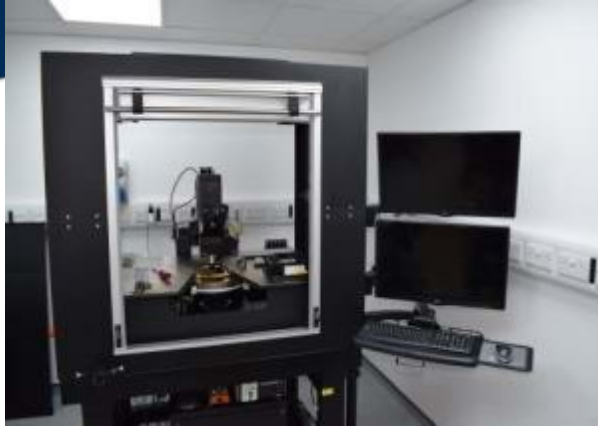


## SRIM simulations

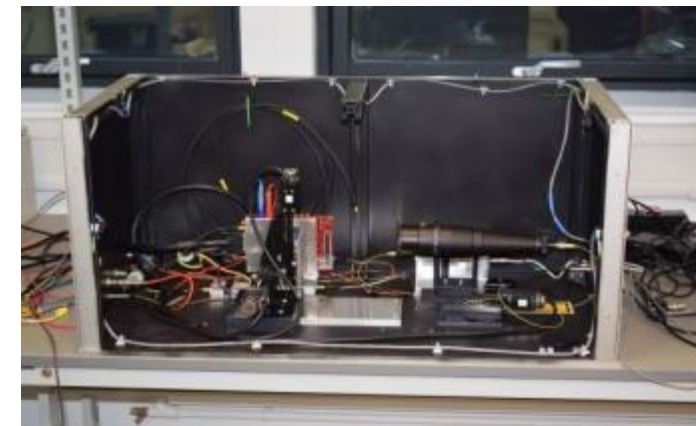
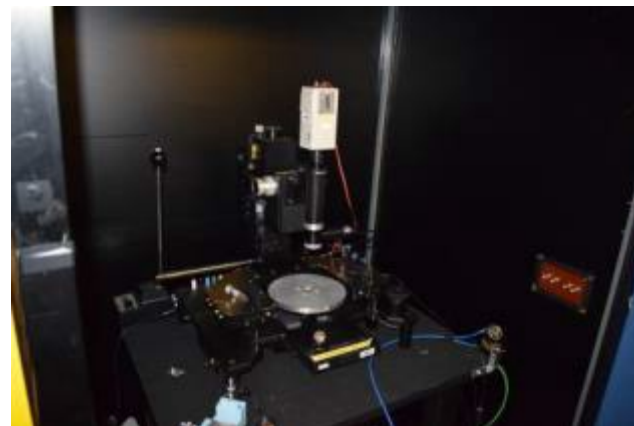
(GaN irradiation with 26MeV p<sup>+</sup>)

## Easy access to ISIS, DIAMOND



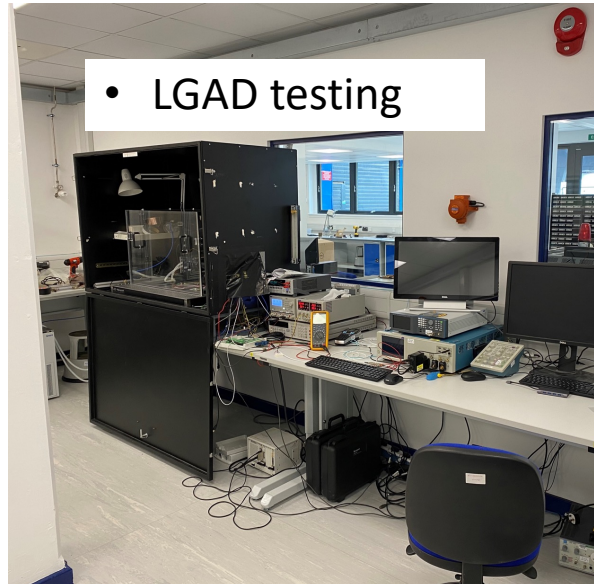


- Pulsed 3 wavelength laser with 2um beam spot accuracy and <1um XYZ motorized stage for sensor testing
- TCT laser
- Thermal camera
- Environmental chambers
- N2 cooling system for live sample testing
- 3-D printers
- Laser Cutting facility
- Keithley Semi-Conductor analyzer CS4200 with HV – CV - PG units
- Impedance analyzer
- DAQ facilities (ATCA, HSIO, ATLYS, ITS-DAQ, NI DAQ, Basil, Gecco, mupix, IpGbt, VTRX+, felix)



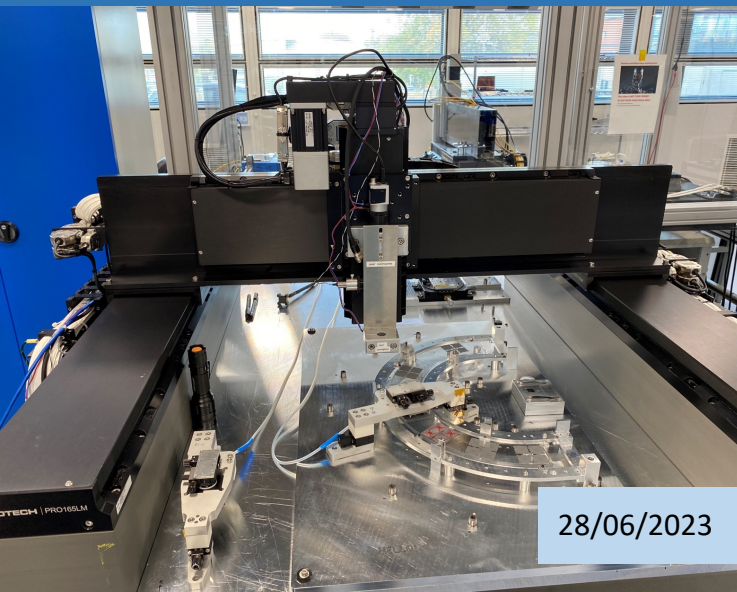


# Sensor Lab





# R115 cleanroom (half the room shown)



28/06/2023

Fergus Wilson, RAL-PPD, Liverpool EiC-UK meeting

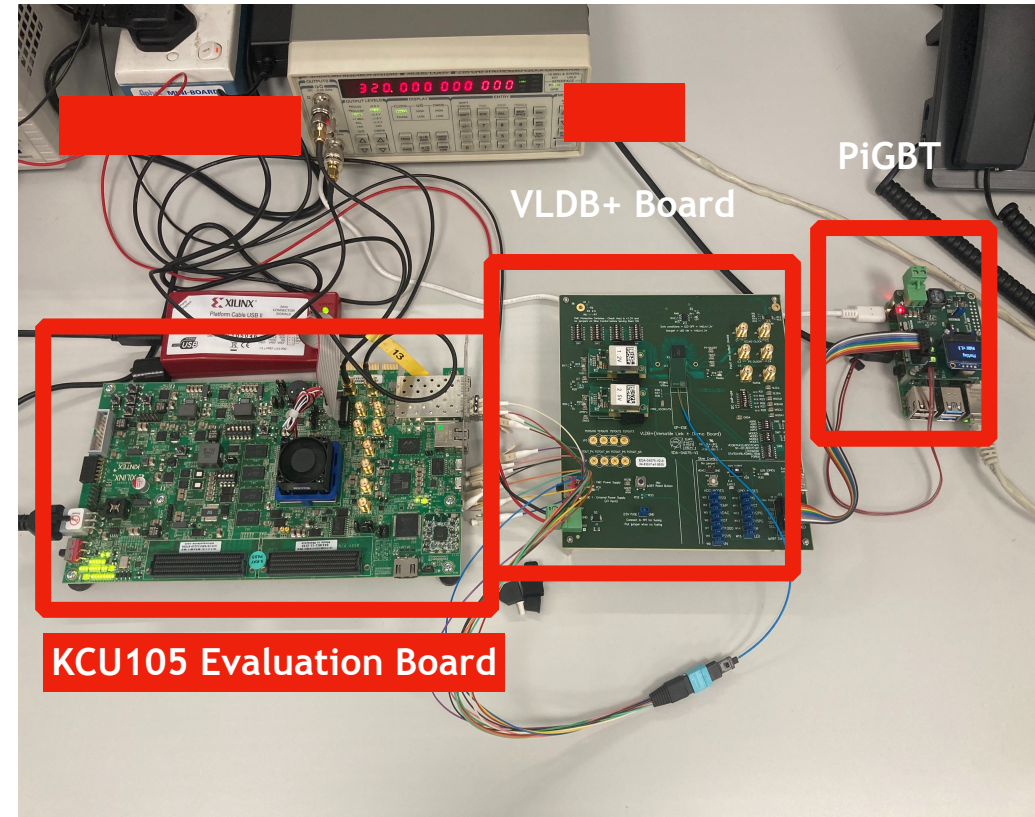
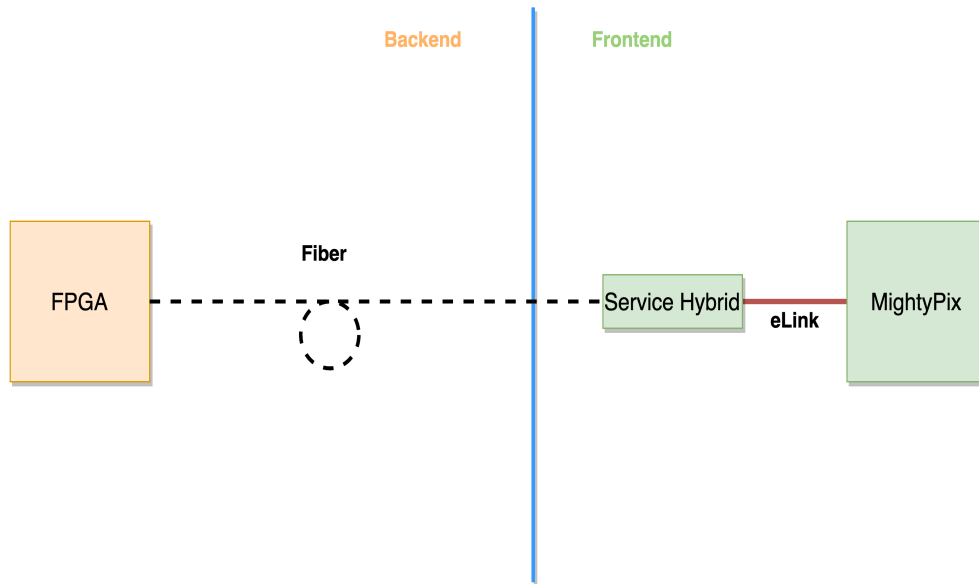


# DAQ Hardware Setup (for LHCb)

Demonstrate a full DAQ chain with final system like components

Some overlap with ALICE plans

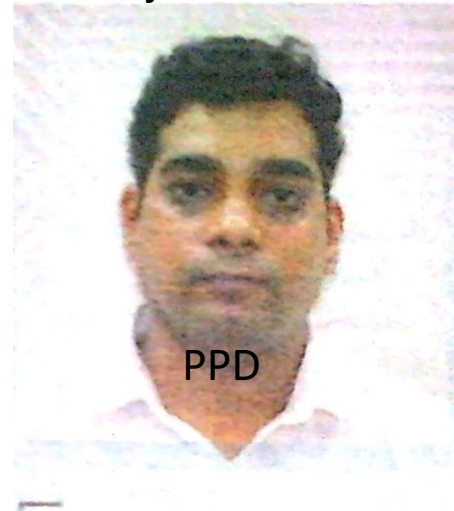
We probably have access to a Felix card



# People and possible work packages (2023-2025)

- DPTS + ERn testing:
  - Still waiting for DAQ system...
  - Laser, radioactive source, etc.
  - Should also be able to make temperature-dependent measurements (down to  $-40\text{ }^{\circ}\text{C}$ )
  - Could look at testbeam data
- Simulation:
  - Detector / tracker
  - MDI ?
  - Link up with Oxford
- DC-DC/serial powering:
  - Integrate with others
- Mini DAQ system:
  - LpGbt etc...

Manoj Jadhav



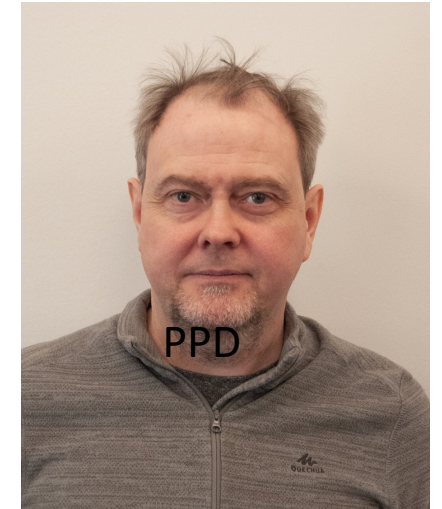
100% from 1-Oct-23

Fergus Wilson



EiC Funding  
10%

Peter Phillips



0%

2023-2025:

- We have ad-hoc access to unfunded effort and expertise

2025-2031:

- Ramp up to be a production site using R115 cleanroom