

## Dalton Cumbrian Facility

### Paid Undergraduate Summer Research Placement (REF: DCF2018-2)

#### Accelerator Physics / Instrumentation / Ion Beam Analysis

**Project start date:** June/July 2018

**Duration:** 8-12 weeks (flexible)

**Project summary:** The use of particle accelerators such as that housed at The University of Manchester's Dalton Cumbrian Facility (DCF) for materials characterisation require appropriate calibration of their accompanying detection system. This project will focus on the characterisation of the spectrometer associated with the existing particle-induced x-ray emission (PIXE) system, used for elemental analysis of selected targets.

The efficiency of the PIXE detector will be investigated by irradiating 'calibration standard' materials using the in-house accelerator facilities (5 MeV pelletron ion accelerator), identifying measures to improve this efficiency through post-irradiation data analysis and use of complementary ion beam analysis techniques, if required.

The opportunity to experience how electronic systems, data analysis and particle beam physics are all interlinked and ensure DCF accelerator systems deliver global scientific impact will also be a focus of this project.

**Location:** The University of Manchester's Dalton Cumbrian Facility (DCF) on Westlakes Science & Technology Park near Whitehaven. The successful candidate must have their own accommodation in West Cumbria for the duration; The University of Manchester cannot provide or subsidise living costs for this placement.

#### Requirements

- An interest in science communication, particle physics and data analysis
- An understanding of why calibration is necessary for scientific equipment
- A drive to solve real world problems
- A-level physics and chemistry
- Good mathematical skills
- Competent user of MS Office (Excel, word etc)
- Good analytical thinking
- Patience, good time management skills and the ability to work under own initiative
- Good communication skills and the ability to work as part of a team
- Ideal for a competent Y12 or undergraduate student

**Salary:** The successful candidate will be paid £8.64 per hour based on a 35 hour working week.

**How to apply:** Please email a CV and covering letter to [Anne.Knott@manchester.ac.uk](mailto:Anne.Knott@manchester.ac.uk) by 5pm on Monday 21<sup>st</sup> May 2018. Your CV should include email addresses and telephone numbers for two referees who are happy to be contacted in relation to this post. Your covering letter should include the post reference number and should explain:

1. Your reasons for wishing to undertake this particular project
2. How you meet all or most of the requirements set out above

Shortlisted candidates will be invited to interview in mid-May. Dates can be flexible to accommodate exams and other commitments. Interviews may be in person or via an appropriate digital platform, e.g. Skype or Facetime.