

It is strongly advised that you discuss your experimental details with a member of the DCF Technical Team prior to completing a proposal form. For advice and guidance, please email [dcf.experiments@manchester.ac.uk](mailto:dcf.experiments@manchester.ac.uk)

The proposal form must be submitted by a PI (or scientific leader of the project). Submission of this form automatically indicates agreement by the PI to comply with our Expectations, as detailed below (page 4).

This proposal form is for access to our Ion Beam Accelerators, Gamma Irradiator and X-Ray Cabinet facilities. If you are applying for access to more than one of these facilities, you will need to submit a proposal form for each. Please state clearly on each proposal form if you require simultaneous scheduling of facilities.

### Notes on Completing the Form

**Proposed Project Title:** *Please give an informative title of your proposed project.*

**Funding:** *If you are applying for access via the UK National Ion Beam Centre or the Royce Access Scheme you will need to obtain validation (through DCF) before applying for actual irradiation time.*

**Funding/Grant Reference Number:** *Please supply the funding grant code, project code, EPSRC reference number etc.*

**Principal Investigator (PI) or Line Manager Details:** *This should be the scientific leader and should be an academic or equivalent. It is not essential that the PI attends DCF for the experiment however the PI is responsible for ensuring that all safety documentation is completed to a satisfactory level prior to any experiment starting. Submission of this form automatically indicates agreement by the PI to comply with our Expectations, as detailed below.*

**Experimental Lead Person Details:** *Please give name and email address of the experimental leader of the project, if different to PI details above.*

**Scheduling Constraints:** *We will make every effort to schedule the dates you request. However, if there is excessive demand this may not always be possible. If you are allocated a time slot but are unable to attend, **the session will be charged and will not be rescheduled.***

### Scientific and Technical Case

**Outline Main Objectives of Experiment:** *Please address all of the following:*

- *Aim of the proposed experiment and description of the scientific background,*
- *Results of any previous own work relating to this proposal, including those from previous DCF experiments and how the proposed work follows from those results,*
- *Explain what results are expected and how they will help solve the scientific question posed,*
- *What the potential benefits to humanity are from the research.*

**Experimental Description:** *These are technical details about how the experiment is to be performed. Please include the following:*

- *Experimental method*
- *Samples, including type and number - Give a brief description of the sample(s), including material and size. Please be specific and not just state (e.g.) 'a number of polymer samples will be irradiated' – rather you should specify the type of polymer, giving some indication of the variety and scientific justification.*
- *Specific technical requirements (e.g. electrical connections, heating/cooling)*
- *Planned collaborations*

**Estimated Time Requested and Justification:** *Justify the time requested based on length of irradiation, number of samples, and any additional time needed for setting up. This helps with scheduling of experiments and quotations.*

**Relevant Publications:** *Any recent own publications relating to your work in this area, or by others that are relevant to the proposed project.*

**Safety:** *These questions provide a foundation for a hazard screening. Please answer all questions to the best of your knowledge. Prior to submitting this form, you should have already discussed this proposal with a member of the DCF Technical Team and discussed the safety, risks, hazards etc.*

- *'New' experiments - either those new to DCF or just new to a particular user group who do not benefit from 'prior' knowledge or existing safety paperwork, can require more time and effort to understand. If your experiment falls into this category, please indicate it in the appropriate box*
- *Hazards: Chemical, abnormal pressures, temperatures (cryogenic, hot etc.), electrical, radiological (for proton ion beams, sample activation can be expected – the extent of this can limit our ability to handle the irradiated sample and return it to you)*
- *It is expected that the disposal of all hazardous waste (chemical, biological or radiological) will remain the responsibility of the end user and DCF will not be expected to remove any hazardous waste created during an experiment.*

**Consumables & Equipment:** *Please include any materials or equipment consumables that will be required and whether they will be supplied by you or need to be made available. DCF will not normally provide consumables for your experiment. Also specify any equipment you plan to bring to DCF. Electrical equipment will require a valid in-date PAT sticker. DCF reserves the right to refuse to allow the use of any experimental equipment which does not meet required safety standards.*

**Scientific Outputs:** *It is important to DCF that we are aware of the scientific output generated through use of our facilities. Please include here any publications, conference presentations etc. you have produced since you last used DCF facilities.*

**Experimental Equipment:** *The following questions will differ depending on which experimental facility you are requesting on this form. If you are not sure of any of the questions asked, please contact a member of DCF Technical team.*

*Ion Beam Accelerator:*

- *Ion Species*
- *Ion Beam Energy (MeV)*
- *Ion Beam Current ( $\mu$ Amps)*
- *Sample Temperature ( $^{\circ}$ C)*
- *Number of Samples*
- *Number of Irradiation Days Requested*

*Gamma Irradiator:*

- *Total Dose per Sample (Gy)*
- *Dose Rate (Gy/min)*
- *Sample description including dimensions*
- *Does the experiment have to be a continuous irradiation*
- *Can the Irradiator be shared with others*
- *Number of Samples*
- *Number of Irradiation Days Requested*

*X-Ray Cabinet*

- *Total Dose per Sample (Gy)*
- *Dose Rate (Gy/min)*
- *Sample description including dimensions*

**Use of Other DCF Equipment:** *We have a selection of analytical and characterisation equipment available. You can find details of available equipment here:*

*<https://research.manchester.ac.uk/en/equipments/dalton-cumbrian-facility>. If you do wish to use any of these during the course of your irradiations, please list them here and the relevant Technical Specialist will contact you to discuss prices and requirements.*

**Export Control:** *Please note export controls may apply to your work performed at DCF. It is the responsibility of the PI or your manager to determine whether export controls apply to your work. If export controls apply to your work this must be put in place by you before work can take place at DCF. The user access request form questions on export controls allow us to perform assurance on your proposal so that it can be flagged as potentially requiring export controls and we will use the responses to discuss with you further if successfully award time. It remains the person in charge of the experiment (PI or manager) responsibility to make sure relevant export controls relating to your work are in place. DCF may require evidence of suitable arrangements are in place.*

## **Expectations**

In submitting this proposal, should irradiation time be awarded, I will:

- ✓ Ensure all samples and equipment brought into DCF for the purpose of this experiment are removed upon completion, leaving all work areas in a safe, clean condition.
- ✓ Ensure all members of the research team are trained to an adequate level to ensure the experiment and all related procedures are conducted safely. We expect all individuals using DCF facilities to be competent to do so without requiring continuous supervision by DCF staff. We do acknowledge the highly specialist, and often unique, nature of many of the facilities available at DCF and specialist training can be provided either through taught courses or on a one-to-one basis. However, such training can only be offered by prior arrangement with DCF – it cannot be assumed that it will be available at the point of use.
- ✓ Acknowledge DCF and its staff in any publications arising using the standard template phrases (SEE BOILERPLATE BELOW)
- ✓ Include DCF staff in any publications arising when they have had significant input into experiment/equipment design or analysis. You should apply the same criteria as you would for members of your own research team when defining authorship.
- ✓ Facilitate DCF staff in using primary data to promote DCF, without compromising any publication. We will always consult with you in advance of this happening and only use such data / figures with your permission and with suitable acknowledgement.
- ✓ Consent to storage of personal data by The University of Manchester. Where personal data of an additional party (Team Leader and Secondary Investigators) has been added to this proposal form, the PI also confirms that they have sought consent from each additional party for their data to be collected and used by The University of Manchester. Personal data will be used for the purposes of allocating and scheduling experimental time, and in future calls for proposals. The information may also be used for statistical purposes as required by our funding organisations.
- ✓ Comply with applicable UK export control legislation and regulations and will apply for any necessary licences. I will advise of any plans to transfer samples or materials outside the UK prior to any use of facilities at DCF. Additionally, I will comply with the specific conditions of any US export control legislation of which I have been informed, and which are applicable to this research.

### **Acknowledgement of the Use of DCF Facilities**

“We acknowledge the support of The University of Manchester’s Dalton Cumbrian Facility (DCF), a partner in the National Nuclear User Facility, the EPSRC UK National Ion Beam Centre and the Henry Royce Institute. [Plus, unless acknowledged as a co-author or elsewhere: We recognise [TECHNICAL SPECIALIST NAME(S)] for their assistance during the [PROCESS(ES)].”