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 any advice or guidance, please email 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 6).

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.

Guidance for Completing the Proposal Form:

Project Information

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

Funding
Select your confirmed means of funding. If you are applying for access via the UK National Ion Beam Centre or the Royce Equipment Access Scheme you will need to obtain validation (through DCF) before submitting your proposal. We cannot accept proposals without confirmed funding.

Funding/Grant Reference Number
If applicable, please supply the 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 (page 6).

Principal Investigator (PI) or Line Manager Email Address
Please add a valid email address for the scientific leader of this project – PI or line manager.

Name of Experimental Lead (if different to PI)
Please give name of the experimental leader of the project. This will be the leader of the project that will be on site at DCF or is the main contact for discussion of experimental details if no one will be on site.

Email Address of Experimental Lead (if different to PI)
Please add a valid email address for the experimental leader of the project.

Institution/Organisation Name
Please include the name of the organisation that you work for.

Scheduling Constraints
Please state any dates that you cannot make and we will avoid scheduling those. If you are allocated a slot and do not attend, (or provide samples), the session will be charged and will not be rescheduled.

Scientific and Technical Case

Outline the Main Objectives of Your Experiment & Describe its Potential Positive Impact on Society

This is the scientific case for your experiment.

Please address all 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 you expect and how they will help solve the scientific question,*
- *What the potential benefits to humanity are from the research.*

Experiment Description

These are the technical details of your experiment; more information on dose rates, types of radiation etc., will be requested further on in the form.

Please address all of the following:

- *Samples, including type and number. Give a brief description of the sample(s), including material and size. Please be specific and not just state 'a number of polymer samples will be irradiated' – 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.

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 and its safety, risks, hazards etc. with a member of the DCF Technical Team.

Does your experiment constitute a new form of experiment that you have not previously performed at DCF?

'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. Slightly different compositions of materials undergoing ion beam irradiations wouldn't be considered new but would require activity assessment.

Has this experiment been conducted by another user of DCF that you are aware of?

If yes, who performed the experiment? Please provide their name and/or institution.

Who have you discussed this proposed experiment with at DCF, and what was the outcome of the discussion?

Please give the name of the DCF Technical Specialist, and brief summary of the discussion.

Following this discussion of the proposed experiment, was anything flagged as new, high risk, or novel?

List any potential hazards associated with the proposed experiment
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).

Will your experiment use radioactive samples? *E.g. Uranium*

Will your experiment result in the activation of your samples or equipment?

This is probable for ion beam experiments, not gamma or X-Ray.

Will your experiment result in the production of any waste material (chemical, biological or radiological) requiring disposal at DCF

The expectation is that it should NOT. If yes/maybe, provide details. 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.

Please describe the waste expected to be a product of the experiment.

Consumables & Equipment

List essential consumables associated with the experiment and any equipment you will be bringing to DCF
Please include any materials or consumables that will be required. DCF will not normally provide consumables for your experiment, you should arrange to bring these with you. Also specify any electrical 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 that we are aware of the scientific output generated through use of our facilities.

Have you worked at DCF before?

If yes, please provide scientific outputs since your last experiment.
Please include here any publications, conference presentations etc. you have produced since you last used DCF facilities.

Experimental Equipment

Which of our facilities are you submitting this proposal for?
The following questions will differ depending on which facility you are requesting. If you are not sure of any of the questions asked, please contact a member of DCF Technical team.

Ion Beam Accelerator

State Ion Species Required

Ion Beam Energy (MeV)

Ion Beam Current (µAmps)

Sample Temperature (°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

Number of Irradiation Nights Requested

X-Ray Cabinet

Total Dose per Sample (Gy)

Dose Rate (Gy/min)

Sample Description Including Dimensions

Does the Experiment have to be a continuous irradiation

Number of Samples

Number of Irradiation Days Requested

Do you require the use of any other DCF equipment?

We have a selection of analytical and characterisation equipment available. You can find details here. If you wish to use any of these during your irradiations, please list them here and the relevant Technical Specialist will contact you to discuss prices and requirements.

Please specify any other equipment you require.

Please specify the estimated time needed for each instrument. State if this is required before, during or after the irradiation(s). Add as much detail as possible to help our staff calculate your requirements and feasibility.

Export Controls

Export controls may apply to your proposed experiment. It is the responsibility of the PI or your line manager to determine whether export controls apply to your work. If export controls do apply this must be put in place by you before work can take place at DCF. These questions on export controls allow us to perform assurance on your proposal so that it can be flagged and we will use the responses to discuss with you further if awarded experimental/equipment access. It remains the responsibility of the person in charge of the experiment (PI or line manager) to make sure relevant export controls relating to your work are in place. DCF may require evidence that suitable arrangements are in place.

Will your data and/or materials/samples be used and stored exclusively in the UK?

Is your organisation, and any parent organisations, wholly owned within the UK?

Will you be exporting data and or materials/samples outside the UK?

Will you share the materials/samples or data with a non-UK owned organisation either inside or outside the UK?

Additional Supporting Documents

Microsoft Forms does not currently support the upload of images or files on publicly available Forms. If you need to send any images or documents to us in support of your application, please tick the 'additional documents sent' box and email your files to dcf.experiments@manchester.ac.uk If you do not need to send us any additional files please leave this blank and move to next question.

Agreement

By submitting this proposal form, you and the PI agree to the Expectations outlined below.

Our Expectations:

In submitting this proposal, should experimental 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. All individuals using DCF facilities must 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 – 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. Advise of any plans to transfer samples or materials outside the UK prior to any use of facilities at DCF. Additionally, 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).]"