### Chartered Physicist

### Last updated June 2024

### This document is a template of the online application form. While this can be used to prepare your application, it cannot be used to apply. Please apply through the [online application form](https://applications.iop.org/grades.aspx).

### Please note: As an offline document, any changes to the application process will not be immediately reflected in this document. Please always refer to the [online pages](https://www.iop.org/membership/professional-registration/chartered-physicist) for the most up to date requirements and guidance.

|  |
| --- |
| Why do you want to be professionally registered and what would it mean to you? |
| *Please note: This isn’t part of the application process, however it is useful for you to think about this as it will help you understand the process and think of examples to write about.* |

### Personal details

|  |  |
| --- | --- |
| Membership number |  |
| Title |  |
| First name |  |
| Surname |  |
| Date of birth |  |
| Email |  |
| Daytime contact number |  |

### Home address

|  |  |
| --- | --- |
| Line 1 |  |
| Line 2 |  |
| Line 3 |  |
| Town/City |  |
| County/State/Province |  |
| Postcode/Zip code |  |
| Country and Region |  |
| Note |  |

### Business/Term time details

|  |  |
| --- | --- |
| Job title |  |
| Company name |  |
| Department |  |
| Line 1 |  |
| Line 2 |  |
| Line 3 |  |
| Town/City |  |
| County/State/Province |  |
| Postcode/Zip code |  |
| Country and Region |  |
| Note |  |

### Current course of study

|  |  |
| --- | --- |
| Name and location of university/college |  |
| Country |  |
| Department |  |
| Degree type |  |
| Course title |  |
| Please enter dates in the format MM/YYYY | |
| Date started |  |
| Expected completion date |  |

### Academic qualification(s)

|  |  |
| --- | --- |
| Course title |  |
| University |  |
| Degree type |  |
| Degree grade |  |
| Country |  |
| Course start date |  |
| Course end date |  |
| Permission to verify |  |

|  |  |
| --- | --- |
| Course title |  |
| University |  |
| Degree type |  |
| Degree grade |  |
| Country |  |
| Course start date |  |
| Course end date |  |
| Permission to verify |  |

|  |  |
| --- | --- |
| Course title |  |
| University |  |
| Degree type |  |
| Degree grade |  |
| Country |  |
| Course start date |  |
| Course end date |  |
| Permission to verify |  |

### Documents

The following documents will need to be uploaded with personal identifiable information removed (by this we mean: name, age/date of birth, address, contact details, social media profiles and photos. Your CV should not include a reference list. How to refer to articles or publications has been included below. The file name should also not include your name:

* CV
* Organisational chart or statement of accountability

The following documents also need to be uploaded but with no edits to the document to blur or redact the name. The file name should not include your name (for example, the file name should be MPhys certificate):

* Certificates
* Course transcripts

The following documents may be needed, however they should not include the outlined details:

* Master/PhD thesis/dissertation abstract (name and contact details removed)
* Equivalence report - supporting documentation, tables, graphs, charts (name removed)
* Supporter statement (should not include supporter names and contact details) – outline role i.e. my line manager
* Teaching statement (name removed, address and contact details removed)

Suggested file name structure: Application, document descriptor (e.g. CPhys App CV, CPhys App MPhys Certificate, CPhys App Phd Abstract)

References: Your contribution, publication (e.g. first author, Phys. Rev 1)

The IOP will confirm to the panel that your publications have been verified and we will confirm whether you are first author, co-author etc.

**CPhys Masters Equivalence Options**

### One of the below options must be selected and you will then need to provide the appropriate evidence or complete the relevant section:

### Accredited Masters (Integrated MPhys, MSci)

### CPhys Master’s Project Equivalence Report

### Abstract / Teaching qualification (with statement)

**CPhys Master’s Project Equivalence Report**

For those who have not completed an integrated Master’s degree (MPhys or MSci) from the UK or Ireland accredited by the Institute of Physics or awarded prior to the 1st January 1998.

(Applicants with a relevant Master’s or PhD may upload their dissertation abstract in place of this report. Ensure information provided demonstrates your own role in the study.)

Applicants who wish to apply through a Master’s Equivalence Project report complete the report using the below format.

This report should have a total length of approximately 2000 words. The maximum length is 3000 words.

|  |
| --- |
| **Project Aim** – Describe what the project was designed to achieve |
| 400 words |
| **Outcome** – What you did and the results of the project and how they relate to the original aims |
| 600 words |
| **Development** - How you developed your skills and knowledge to meet the needs of the project |
| 400 words |
| **Evaluation** - Review of the project and any future improvements that could be made.  Summary of the skills and knowledge developed. |
| 400 words |

**Teaching Qualification**

Teachers can upload proof of their status (for example scans of PGCE certificate and NQT completion letter, or their DfE number) and a paragraph describing how their physics teaching developed early on in their career. This might be about the models used to overcome misconceptions, approaches to practical work, the teaching of specific topics or anything else with a physics focus.

|  |
| --- |
| **Supporting statement** |
| 500 words max |

**CPhys Professional Review Report**

**ACTS**

Applicants who have successfully completed accredited company training schemes (ACTS) should fill out the details of their ACTS below. Your scheme leader will be contacted to verify your successful completion of the ACT Scheme.

|  |  |
| --- | --- |
| Company name |  |
| Scheme leader name |  |
| Completion date | DD/MM/YYYY |

All sections must be completed in full. Each competence should have 100 - 500 words. Reports that exceed the word count will be returned to the applicant for editing. Please note that as part of the application process a copy of the full report is sent to supporters for verification and comment.

|  |
| --- |
| **Introduction** |
| Career history, current job title and description- 500 words max |

**Professional development**

The evidence will largely be met during employment. Most of the examples you provide should be recent (in the last 5 years). As a guide, we would normally expect that the Professional Development (PD) section (competences A - E) would cover your earliest examples. The Responsible Experience (RE) section should cover your most recent examples. The application should demonstrate how you built on your earlier experience in the PD section up to your current RE examples.

Before completing the competencies section, please be sure to read the Institute of Physics [Code of Conduct](https://www.iop.org/code-conduct).

|  |
| --- |
| **Competence A – Application of general and specialist knowledge** |
| 100- 500 words |
| **Competence B – Applying physics to the analysis and solution of problems** |
| 100- 500 words |
| **Competence C – Technical and managerial skills** |
| 100- 500 words |
| **Competence D – Communication and interpersonal skills** |
| 100- 500 words |
| **Competence E – Professional conduct** |
| 100- 500 words |

**Responsible Experience**

Provide at least three (preferably four) examples of work that you have carried out at a responsible

level. These should show progression from your Initial Professional Development and demonstrate a

sustained period of responsibility.

|  |
| --- |
| **Example 1** |
| 100- 500 words |

|  |
| --- |
| **Example 2** |
| 100- 500 words |

|  |
| --- |
| **Example 3** |
| 100- 500 words |

|  |
| --- |
| **Example 4** |
| 100- 500 words |

**Continuing Professional Development**

Outline your career, training and development plans for the next five years. This section should explain how you intend to retain competence once you are chartered. This should be around 200 words.

|  |
| --- |
|  |

**Supporters**

|  |  |
| --- | --- |
| Full name |  |
| Membership no. |  |
| Grade(s) or designations |  |
| Email |  |

|  |  |
| --- | --- |
| Full name |  |
| Membership no. |  |
| Grade(s) or designations |  |
| Email |  |

Optional

|  |  |
| --- | --- |
| Full name |  |
| Membership no. |  |
| Grade(s) or designations |  |
| Email |  |

The supporters must know applicant for at least one year and be in a position to comment on the examples provided in the application. When contacted it is important that the supporters justify their level of support.

Supporters do not need to hold professional registration.

The supporters should be from different organisations, or if this is not applicable, different teams or departments.

**Core of Physics**

(For those who have not completed an integrated Master’s degree (MPhys or MSci) or a Bachelor’s degree in physics from the UK or Ireland in either case accredited by the Institute of Physics or awarded prior to 1st January 1998.)

Explain briefly your knowledge of each topic and how it was gained. Formal course (include course title, module, year), on the job training (how covered, in-house training, recommended reading, e learning modules etc), self-directed learning (online courses, journals, books etc. )

Level of detail needed is "Diffraction included in Physics 101 Optics and Waves course"; or "Heisenberg covered in Wave Mechanics in second year of degree".

**Mathematics for Physicists**

|  |  |
| --- | --- |
| Trigonometric and hyperbolic functions; complex numbers |  |
| Series expansions, limits and convergence |  |
| Calculus to the level of multiple integrals; solution of linear ordinary and partial differential equations |  |
| Three-dimensional trigonometry |  |
| Vectors to the level of div, grad and curls; divergence theorem and Stokes’ theorem |  |
| Matrices to the level of eigenvalues and eigenvectors |  |
| Fourier series and transforms including the convolution theorem |  |
| Probability Distributions |  |

**Mechanics and relativity**

**Classical mechanics to include:**

|  |  |
| --- | --- |
| Newton’s laws and conservation laws including rotation |  |
| Newtonian gravitation to the level of Kepler’s law |  |

**Special relativity to the level of:**

|  |  |
| --- | --- |
| Lorentz transformations and the energy-momentum relationship |  |

**Quantum Physics**

**Background to quantum mechanics to include:**

|  |  |
| --- | --- |
| Black body radiation |  |
| Photo-electric effect |  |
| Wave-particle duality |  |
| Heisenberg’s Uncertainty Principle |  |

**Schrodinger wave equation to include:**

|  |  |
| --- | --- |
| Wave function and its interpretation |  |
| Standard solution and quantum numbers to the level of the hydrogen atom |  |
| Tunnelling |  |
| First order time independent perturbation theory |  |

**Atomic, nuclear and particle physics to include:**

|  |  |
| --- | --- |
| Quantum structure and spectra of simple atoms |  |
| Nuclear masses and binding energies |  |
| Radioactive decay, fission and fusion |  |
| Pauli Exclusion Principle, fermions and bosons and elementary particles |  |
| Fundamental forces and the Standard Model |  |

**Condensed matter physics**

|  |  |
| --- | --- |
| Mechanical properties of matter to include elasticity and thermal expansion |  |
| Inter-atomic forces and bonding |  |
| Phonons and heat capacity |  |
| Crystal structure and Bragg scattering |  |
| Electron theory of solids to the level of simple band structure |  |
| Semiconductors and doping |  |
| Magnetic properties of matter |  |

**Oscillation and Waves**

|  |  |
| --- | --- |
| Free, damped, forced and coupled oscillations to include resonance and normal modes |  |
| Waves in linear media to the level of group velocity |  |
| Waves on strings, sound waves and electromagnetic waves |  |
| Doppler Effect |  |

**Electromagnetism**

|  |  |
| --- | --- |
| Electrostatics and magnetostatics |  |
| DC and AC circuit analysis to the level of complex impedance, transients and resonance |  |
| Gauss, Faraday, Ampere, Lenz and Lorentz laws to the level of their vector expression |  |
| Maxwell’s equations and plane electromagnetic wave solution; Poynting vector |  |
| Electromagnetic spectrum |  |
| Polarisation of waves and behaviour at plane interfaces |  |

**Optics**

|  |  |
| --- | --- |
| Geometrical optics to the level of simple optical systems |  |
| Interference and diffraction at single and multiple apertures |  |
| Dispersion by prisms and diffraction gratings |  |
| Optical cavities and laser action |  |

**Thermodynamics and statistical physics**

**Zeroth, first and second laws of thermodynamics to include:**

|  |  |
| --- | --- |
| Temperature scales, work, internal energy and heat capacity |  |
| Entropy, free energies and the Carnot Cycle |  |
| Changes of state |  |

**Statistical mechanics to include:**

|  |  |
| --- | --- |
| Kinetic theory of gases and the gas laws to the level of Vander Waals equation |  |
| Statistical basis of entropy |  |
| Maxwell-Boltzmann distribution |  |
| Bose-Einstein and Fermi-Dirac distributions |  |
| Density of states and partition function |  |