# PGR Studentship Information Template 2022 entry

* Please complete the template with as much information as possible.
* \*fields are essential.
* If you have information that does not have a label, please create a new row in the table for it.

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| **\*Title of studentship** | High resolution solid state NMR as a tool for analysis of polymeric controlled release drug delivery systems |
| **Value / what is covered?** | No funding is currently available; however, we welcome self-funded applications |
| **Awarding body** | N/A |
| **Number of studentships** | 1 |
| **\*Summary descriptive text / Example of research project** | Nuclear magnetic resonance (NMR) spectroscopy is widely used in the development of both new drug entities and the characterisation of drug formulations. Solid state NMR is a particularly useful tool, since many drug formulations comprise solid drugs dispered in solid polymeric excipients, wherein the polymeric excipients are commonly used to help modulate the drug release characteristics. With continued advances in instrumentation and resolution, solid state NMR is an increasingly poweful tool for probing the structural features of polymeric drug delivery systems.  Silicone elastomers (SE) and ethylene vinyl acetate (EVA) copolymers have a long history of use as polymeric excipients in various sustained and controlled release drug delivery systems. In this project, we will assess the utility of high resolution solid-state NMR – focusing on 13C, 19F and 31P nuclei – to probe the structural features of (i) currently marketed SE and EVA drug delivery products and (ii) experimental SE and EVA formulations containing dispered pharmaceutical drug substances, including fluorinated and phosphorylated drugs for which 19F and 31P NMR experiments might be particularly informative.  The project will likely be of particular interest to applicants seeking to develop key skills across the disciplines of analytical chemistry, polymer science, drug delivery and pharmaceutical sciences. |
| **\*Supervisor(s)** | Dr Panagiotis Manesiotis – School of Chemistry and Chemical Engineering  Prof. Karl Malcolm – School of Pharmacy |
| **\*Eligibility / residence Status** | International applicants; self-funding applicants |
| **Country** | Worldwide |
| **\*Start date and duration** | September 2022 – three years |
| **\*Faculty** | Medicine Health and Life Sciences / Engineering and Physical Sciences |
| **\*Research centre / School** | School of Chemistry and Chemical Engineering / School of Pharmacy |
| **Subject area** | Drug Delivery, Materials Science, Analytical Chemistry |
| **Candidate requirements / Key skills required for the post** | Applicants should have a 1st or 2.1 honours degree (or equivalent) in a relevant subject. Relevant subjects include Pharmacy, Molecular Biology, Pharmaceutical Sciences, Biochemistry, Biological/Biomedical Sciences, Chemistry, Engineering, or a closely related discipline. Students who have a 2.2 honours degree and a Master’s degree may also be considered, but the School reserves the right to shortlist for interview only those applicants who have demonstrated high academic attainment to date |
| **\*Deadline for applications** | 31 March 2022 |
| **\*How to apply / contacts** | All postgraduate research applicants who are interested in the project must submit an application all required supporting documents via the Direct Applications Portal (link below).  Any interested applicants can informally contact [Prof. K. Malcolm](mailto:k.malcolm@qub.ac.uk) or [Dr P. Manesiotis](mailto:p.manesiotis@qub.ac.uk) by email.  <https://dap.qub.ac.uk/portal/user/u_login.php> |
| **Relevant links / more information** | <http://www.qub.ac.uk/schools/SchoolofPharmacy/Research/PostgraduatePositions/>  <http://www.qub.ac.uk/schools/SchoolofPharmacy/Research/>  <https://www.qub.ac.uk/schools/SchoolofChemistryandChemicalEngineering/Study>  /PostgraduateResearch/PhDOpportunities/  https://www.qub.ac.uk/schools/SchoolofPharmacy/Research/find-a-phd-supervisor/professor-karl-malcolm.html  <http://go.qub.ac.uk/Manesiotis> |
| **Keywords for search filters** | Drug delivery, materials science, analytical chemistry, polymers, solid state NMR |
| **Training provided through the research project** | The successful applicants will join a multi-disciplinary team working across the Schools of Pharmacy and Chemistry and Chemical Engineering and will receive hands on training on design, development and characterisation of polymer materials for drug delivery. Example techniques include HPLC/HPLC-MS, GC/GC-MS, surface area analysis, FT-IR, UV and fluorescence spectroscopies, as well as solution and solid-state NMR. The student will also have opportunities to develop teamwork and interpersonal skills, literature review and writing skills, as well as presentation skills, both within the research group or University activities, as well as in major international conferences. |
| **Expected impact activities** | The student will be expected to participate in School outreach events to promote the impact of their own research, as well as wider public facing science events. |