# **EPSRC supported EngD**   **Evolutionary Optimisation of a Pharmaceutical Feeder System**

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Tax free bursary £ 25,000 p.a. plus fees paid

The transition from conventional pharmaceutical secondary manufacture to continuous direct compression (CDC) stands to provide significant benefits in terms of speed of medicine development, cost waste reduction, and energy efficiency through elimination of scale-up and complex processing steps. However, the transition is currently hampered by the fact that certain, poorly-flowing materials can be highly challenging to process in this manner. The goal of this project is to use a combination of cutting-edge experimental imaging, numerical modelling, and AI-driven optimisation to help overcome this challenge.

The project will focus specifically on the feeding stage of the CDC process. The successful applicant will work with GlaxoSmithKline and the University of Birmingham to develop an in-silico model of an archetypal feeder system, validating the model using the University of Birmingham’s unique Positron Emission Particle Tracking facility, facilitating a detailed understanding of the flow dynamics and stresses within the system. They will then apply AI tools developed in the academic supervisors’ group to optimise the operation and geometric design of key components of the feeder system so as to allow processing of a wider range of materials via CDC than is currently possible providing confidence assigning assets to CDC thus unlocking improvements in energy-, waste- and cost-efficiency of drug development.

To be eligible for EPSRC funding candidates must have at least a 2(1) in an Engineering or Scientific discipline or a 2(2) plus MSc.

To apply please email your cv to [cdt-formulation@contacts.bham.ac.uk](mailto:cdt-formulation@contacts.bham.ac.uk). Currently we are only able to accept UK nationals. For details on the Engineering Doctorate scheme visit the [homepage](http://www.birmingham.ac.uk/schools/chemical-engineering/postgraduate/eng-d/index.aspx). **Deadline: 8 April 2024**