# EPSRC supported ENGD Project. Inverse Modelling of Reaction Vessels for Optimal Control

## Johnson Matthey (Billingham)

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

Johnson Matthey [JM] makes formulated products, catalysing the net zero transition. These are heavily characterised and tested during product development and manufacturing. The move towards better process efficiency, product control and increasing digitisation of manufacturing plant leads inexorably to a need for improved on-line measurement, and real time process modelling. However, analytics of these data is insufficient to fully optimize the processes.

The focus of this project is to integrate available physical models with available process data to create real time inverse models (i.e. digital twins) that are suitable for advanced process control needs of JM, with a focus on the crystallisation of existing products. The EngD student will work as an integral part of the process measurement and control group enabling the digitisation drive across JM manufacturing. The EngD researcher will play a key role within this team; the role will primarily be modelling focused but will require the development of a deep understanding of instrument design and practical experimental skills.

The researcher will obtain training and practice in a wide range of skills critical to the future “digital chemical engineer” in an exciting and growing group, and an opportunity to work with a world leading formulation business and gain a unique range of mathematical, engineering and digital skills.

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). This project is open to UK and international students. For details on the Engineering Doctorate scheme, visit the [homepage](http://www.birmingham.ac.uk/schools/chemical-engineering/postgraduate/eng-d/index.aspx).

**Deadline: 20 May 2024**