

Dr Phillip Robbins MEng, PhD, AMIChemE

Senior Lecturer

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About

Phil Robbins is a Lecturer in the School of Chemical Engineering.

He is heavily involved in both undergraduate and postgraduate teaching. In particular co-ordinating the 3rd year design project and a new **[MSc in Industrial Project Management](/postgraduate/courses/taught/chemical-engineering/industrial-project-management.aspx)**.

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His research interests are based around studying process systems to develop simplified models particularly in the area of food and pharmaceutical processing.

Qualifications

- PhD in Chemical Engineering, University of Birmingham, 2003
- MEng in Chemical Engineering, Cambridge University, 1999

Biography

Phil Robbins studied engineering then specialised in Chemical Engineering at Cambridge University. He then completed a PhD at the University of Birmingham with Prof Peter Fryer looking into colour and flavour formation during the roasting of speciality malts (used in brewing).

He then worked as a teaching fellow along with Dr Rachel Bridson in developing the **[MSc Advanced Chemical Engineering course](/postgraduate/courses/taught/chemical-engineering/advanced-chemical-engineering.aspx)** **[\(/postgraduate/courses/taught/chemical-engineering/advanced-chemical-engineering.aspx\)](/postgraduate/courses/taught/chemical-engineering/advanced-chemical-engineering.aspx)**, before taking up a lecturing position in 2006.

Since becoming a lecturer Phil is still very involved in course development and delivery. With support from a lot of staff but particularly Prof Lawrence Coates (interdisciplinary design project with the School of Civil Engineering), Dr Neil Rowson, Dr Andy Ingram and Prof Stuart Blackburn he runs the major undergraduate design project in Chemical Engineering.

A new **[MSc in Industrial Project Management](/postgraduate/courses/taught/chemical-engineering/industrial-project-management.aspx)** **[\(/postgraduate/courses/taught/chemical-engineering/industrial-project-management.aspx\)](/postgraduate/courses/taught/chemical-engineering/industrial-project-management.aspx)** was started in January 2011, and Phil is currently on a RAEng secondment with the GSK Global Capital Projects group (due to end September 2011).

Phil is involved in a number of areas of research particularly relating to the fast moving consumer goods industry (FMCG) for example the recently completed TSB funded ZEAL project.

Teaching

Undergraduate (H800 – H803, H892, H8ND)

2nd Year Modules:

- Computing For Design
- Process Systems
- Principles of Process Control

3rd Year Modules:

- Design Project

Postgraduate

- MSc Industrial Project Management (whole programme)
MSc Advanced Chemical Engineering Modules:
- Process Engineering Fundamentals
- Molecular Delivery
- Developing Structure through thermal processing
- Hygienic Food Processing
- Plant design and manufacturing principles for pharmaceutical production
- From bench to market: the development of pharmaceutical drug products

Postgraduate supervision

Ongoing Projects (PhD)

- Ibrahim Palabiyik – Product recovery and thin film cleaning in FMCG industry (co-supervise with Prof Peter Fryer)
- Majed Al-Harathi – Investigating pasteuriser fouling and cleaning (co-supervise with Prof Peter Fryer)
- Iain Kings – Supercritical Water Oxidation (co-supervise with Dr Bushra Al-Duri)
- Wan Wan Dagang – Adhesion of Biofilms (co-supervise with Prof Zhibing Zhang)
- Andrew Savage – The use of electro hydrodynamics for producing mono-dispersed droplets (external PhD student, co-supervise with Dr Mark Simmons)
- John Willets – The effect of blending on inhalable drug performance (co-supervise with Dr Rachel Bridson)

Ongoing Projects (EngD)

- Kylee Goode – Improved cleaning of brewery deposits (Company Heineken UK, part of ZEAL consortium, co-supervise with Prof Peter Fryer)
- Pam Cole – Improved cleaning of FMCG plant (Company GSK, part of ZEAL consortium, co-supervise with Prof Peter Fryer)
- Jason Dawes – Understanding Roller Compaction (Company BristolMyersSquibb, co-supervise with Dr Richard Greenwood)
- Sam Wilkinson – Improved catalyst performance (Company Johnson Matthey, co-supervise with Dr Mark Simmons)
- Robert Osborne – Towards zero waste on FMCG process lines (Company Unilever, co-supervise with Clive Marshman)
- Angad Rihal – Energy Integration in FMCG processing (Company Unilever, co-supervise with Clive Marshman)
- Chrissie Rowan – Dough Stickiness (Company Campden BRI, co-supervise with Dr Phil Cox)

Research

RESEARCH THEMES

Dr Robbins' works in the areas of process understanding, particularly when linked into the fast moving consumer goods (FMCG) sector, especially food and pharmaceuticals processing looking at fouling and cleaning (hygiene). In addition modelling of heat and mass transfer problems, along with microbial growth are of interest.

RESEARCH ACTIVITY

The current projects co-supervised give an idea of research activity.

These are predominately linked by trying to improve production through better process understanding and look to carry out relevant experiments with suitable models of the underlying physical process.

Other activities

- Race Marshalling – regularly help at the finish of the Great Run race series

Publications

Akhtar, N, Bowen, J, Asteriadou, K, Robbins, P.T., Zhang, Z, Fryer, P.J. (2010), Matching the nano- to the meso- scale: measuring deposit surface interactions with atomic force microscopy and micromanipulation, Food and Bioproducts Processing Transactions of the IChemE C4, 88, 341-348.

Cole, P.A., Asteriadou, K, Robbins, P.T., Owen, E.G., Montague, G.A., and Fryer, P.J. (2010), The effect of cleaning fluid temperature and flow rate on the removal of toothpaste from pipework, Food and Bioproducts Processing Transactions of the IChemE C4, 88, 392-400.

Goode, K.R., Asteriadou, K, Fryer, P.J., Robbins, P.T., Picksley, P. (2010) Characterising the cleaning mechanisms of yeast and the implications for Cleaning In Place (CIP), Food and Bioproducts Processing Transactions of the IChemE C4, 88, 365-374.

Bridson, R.H., Robbins, P.T., Chen, Y.Y., Westerman, D., Gillham, C.R., Roche, T.C. and Seville, J.P.K., (2007), The effects of high shear blending of alpha-lactose monohydrate, International Journal of Pharmaceutics, 339 (1-2), 84 – 90.

Mackey, B.M., Kelly, A.F., Colvin, J.A., Robbins, P.T., and Fryer, P.J., (2006), Predicting the thermal inactivation of bacteria in a solid matrix: simulation studies on the relative effects of microbial thermal resistance parameters and process conditions, International Journal of Food Microbiology, 107, 295 – 303.

Fryer, P.J.; Robbins, P.T. (2005), Heat transfer in food processing: ensuring product quality and safety, Applied Thermal Engineering, 25(16), 2499-2510.

Robbins, P.T. and Fryer, P.J., (2003), The spouted-bed roasting of barley: development of a predictive model for moisture and temperature, Journal of Food Engineering, 59, 198-208.

Bridge, S.P., Robbins, P.T., Paterson, W.R. and Wilson, D.I., (2001), A pneumatic gauging sensor for measuring the thickness of soft films, Trans. IMechE Part E: Process Mechanical Engineering, 215, 19-27.

Robbins, P.T., Belmar, M.T., Elliott, B.L. and Fryer, P.J., (1999), A comparison of milk and whey fouling in a pilot scale plate heat exchanger: implications for modelling and mechanistic studies, Trans. IChemE C, 77. 97-106.

Fryer, P.J., Robbins, P.T., Green, C.H., Schreier, P.J.R., Pritchard, A.M., Hasting, A.P.M., Royston, D.G. and Richardson, J.F., (1996), A statistical model for fouling of a plate heat exchanger by whey protein solution at UHT conditions, Trans. IChemE C., 74, 189-199.