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Dr Tom Mills MEng, PhD, AMIChemE

Lecturer in Food Manufacture

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About

Dr Tom Mills is a lecturer in Food Manufacture, Chemical Engineering. His primary research interest is in the area of in-vitro methods to study the mouth, focusing on tribology as a method to look at thin film and lubrication behaviour. In addition to this he is currently involved in projects looking into saturated fat crystallisation and emulsifier performance, the production and behaviour of particle stabilised emulsion systems and particulate fluid gels. The aim of this research as a whole is to understand material property and behaviour from initial formulation through production and into breakdown and in-mouth experience. Projects focusing on individual areas and spanning these key environments are of interest for further study at doctoral level.

Qualifications

Lecturer in Food Manufacture:

- PhD in Chemical Engineering, University of Birmingham, 2012
- MEng (Hons) in Chemical Engineering University of Birmingham, 2007

Biography

Tom Mills qualified with an MEng(Hons) in chemical engineering from the University of Birmingham in 2007. He went on to study for a PhD at the University of Birmingham with Dr Serafim Bakalis and Prof. Ian Norton on development of in-vitro mouth methods. He now works as a lecturer in food manufacture as part of the Food ATP Programme.

Teaching

Teaching Programmes

- Fundamentals of Food Processing (ATP module)
- Food Flavour (ATP/M Level module)
- Developing Structure Through Thermal Processing (ATP/M Level module)
- Mass Heat and Momentum Transfer (Level I)

Research

Research Themes

Emulsions/Emulsification

Microstructure design and novel processing routes to food emulsion systems

Hydrocolloid/Fluid gels

Functional hydrocolloids and gel particulate systems to provide novel microstructures and performance in-vivo

Tribology

Friction and lubrication measurements related to oral processing and tongue palate interactions

In-Vitro Mouth Methods

Development of methods to relate to oral processing phenomena

Publications

- Tom Mills, Adeline Koay, Ian T. Norton, (in Press 2013) 'Fluid gel lubrication as a function of solvent quality', Food Hydrocolloids
- T Mills and I Norton. 'Tribology: Measurement and Analysis' part of 'Food Microstructures: Microscopy, Measurement and Modelling' (in press, 2013) Woodhead Publishing
- Tom Mills, Ian T. Norton, Serafim Bakalis, (2013) 'Development of tribology equipment to study dynamic processes', Journal of Food Engineering,114(3), 384-390
- F. Spyropoulos, A Heuer, T Mills and S Bakalis. 'Protein Stabilised Emulsions And Whipped Emulsions: Rheological Aspects of Structure and Mouthfeel' part of 'Practical Food Rheology - An Interpretive Approach.' (2011) Wiley-Blackwell
- Tom Mills, Fotis Spyropoulos, Ian T. Norton, Serafim Bakalis. (2011) 'Development of an in-vitro mouth model to quantify salt release from food structures.' Food

Hydrocolloids, 25, 107-113.

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