

# Physics in Food Manufacturing Conference



## Programme

### Wednesday 9 January

- 09:00 Registration
- 10:00-10:15 **Welcome**  
Mr John Bows, PepsiCo, UK. Chair, IOP Physics in Food Manufacturing Group
- 10:15-10:30 **Introduction to Campden BRI**  
Professor Steven Walker, CEO, Campden BRI, UK

### Session: Fats, lipids and nutrition

Chair: Dr Beccy Smith MInstP, Mondelez, UK

- 10:30 **(Invited) Good fat, bad fat – how bad is bad?**  
Dr Kevin Smith, Fat Science Consulting, UK
- 11:00 **New nanostructural insights into triacylglycerols in the molten state**  
Michael Rappolt, School of Food Science and Nutrition (UoL), UK
- 11:20 **Structuring edible oils using sterol olefators**  
Stephen Euston, Heriot-Watt University, UK
- 11:40 **Applications of ultrasound in food science – novel control of fat crystallization and structuring**  
Megan Povey, University of Leeds, UK
- 12:00 **(Invited) Entropy, the second law of thermodynamics and why ‘a calorie may not be a calorie’**  
Andrew Preece, QinetiQ Group plc, UK
- 12:30 **Lunch and Posters**  
Exhibition and catering room

### Session: Physics of Food Microstructure

Chair: Megan Povey, University of Leeds, UK

- 13:30 **(Invited) Cereals and physics: windows on fundamental realities**  
Professor Grant Campbell, University of Huddersfield, UK
- 14:00 **Effect of storage temperature and relative humidity on reconstitutable freeze-dried oil-in-water emulsion stabilised by hydrophobically modified starch**  
Mingduo Mu, University of Leeds, UK
- 14:20 **Wetting, dispersion and dissolution of food powders at different length scales**  
Marco Ramaioli, University of Surrey, UK
- 14:40 **Fragmented proteins as steric stabilisers and emulsifiers in food colloid formulations**  
Rammile Ettelaie, University of Leeds, UK

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15:00            **(Invited) Structure and dynamics of lipid assemblies**  
Dr Arwen Tyler, University of Leeds, UK

15:30            **Coffee break and Posters**  
Exhibition and catering room

16:00            **Exhibitors presentations**  
16:00 Renishaw  
16:05 Oxford Instruments Magnetic Resonance  
16:10 Pro-lite Technology Ltd  
16:15 COMSOL Ltd  
16:20 Camlin Photonics

## Careers Panel

Chair: John Melrose, Jacobs Douwe Egberts, UK

16:30            **Panel:**  
Dr Beccy Smith, Mondelēz, UK  
Bertrand Emond, Campden BRI, UK  
Dr Arwen Tyler, University of Leeds, UK

19:00            **Conference Dinner**  
Cotswold House Hotel

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## Thursday 10 January

09:00 Registration

### Physical Measurement of Foods

Chair: Mr John Bows, PepsiCo, UK. Chair, Physics in Food Manufacturing Group

- 09:30 **(Invited) Lighting up the world of food security with raman spectroscopy**  
Professor Roy Goodacre, University of Manchester, UK
- 10:00 **Raman imaging of chocolate and other confectionary**  
Luen Yan Wong, Renishaw plc, UK
- 10:20 **Investigation of the reconstitution, structure and formation of dairy systems and gels: use of super-resolution microscopy and ultrasound spectroscopy**  
Zachary Glover, University of Southern Denmark, Denmark
- 10:40 **Hyperspectral Imaging: machine vision and ai for use in food sorting applications**  
John Gilchrist, Camlin Photonics, UK
- 11:00 **(Invited) mapping food composition by hyperspectral imaging**  
Dr Martin Whitworth, Campden BRI, UK
- 11:30 **Coffee break, posters and tours of Campden BRI facilities**  
Exhibition and catering room
- 12:30 **Lunch**  
Exhibition and catering room

### Physical and data modelling of foods

Chair: Dr Robert Farr, Jacobs Douwe Egberts, Coffee Scientist

- 13:30 **(Invited) Getting the most out of physics based modelling in the food industry**  
Dr Ritchie Parker, Nestlé, Switzerland
- 14:00 **Outdoor 3D imaging of wheat for phenotyping**  
Imran Mohamed, National Physical Laboratory, UK
- 14:20 **Modelling molecular release during coffee brewing**  
Dr John Melrose, University of Nottingham, UK
- 14:40 **Electronic inspection of the inner pressure of bottled & canned food or beverages. How convex sets theory defines its limits**  
Roberto Alfano, University of Derby, UK
- 15:00 **(Invited) Meso-scale modelling and applications in foods**  
Professor Julia Yeomans, University of Oxford, UK
- 15:30 **Closing remarks and presentation of student poster and presentation prizes**  
Mr John Bows, PepsiCo, UK. Chair, Physics in Food Manufacturing Group

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16:00            **Refreshments and close**  
Exhibition and catering room

## Poster programme

**P1. Ultrasound assisted extraction of rice bran protein and its functional properties**

Bipro Nath Dubey, Sheffield Hallam University, UK

**P2. Ultrasound spectroscopy techniques for the characterization of edible oleofoams**

Lorenzo Metilli, University of Leeds, UK

**P3. Quantifying the effect of natural antimicrobials and ultrasonic treatment on the stress adaptation and antimicrobial resistance of Listeria in viscoelastic gels**

Katherine Costello, University of Surrey, UK

**P4. Biotransformation of wastes of agrifood industries for animal feeding**

Dounia Lakhel, University Hassan II, Morocco

**P5. Lay's shapes has created exciting products to deliver Lay's branded snacks to consumers in emerging markets, via soft matter physics & material science tools**

John Bows, PepsiCo, UK

**P6. Effect of melt temperature on cocoa butter lipolysis**

Louise Sim, University of Leeds, UK

**P7. Modelling moisture loss in roasting coffee beans**

John Melrose, University of Oxford, UK

**P8. The modelling of coffee brew yield**

John Melrose, Jacobs Douwe Egberts R&D, UK

**P9. An in vitro study of the effect of lubrication on swallowing**

Marco Marconati, University of Surrey, UK