

Press release

Presse-Information • Information de presse

03/2014
11 June 2014

<http://www.efce.org>

Producing emulsions in food could be less energy intensive

A more energy efficient process for emulsion production, with applications in the food industry and beyond, developed by a postdoctoral student in Birmingham, UK, has been recognised by the European Federation of Chemical Engineering (EFCE). David Lloyd is the latest recipient of the Julius Maggi Research Award.

Lloyd's research explores rotating membrane emulsification (RME) to produce oil-in-water emulsions. RME is an optimisation of the membrane emulsification process, where droplets are grown individually over time to create a uniform structure across the mixture.



Because the droplets are formed in a different way to the more traditional emulsification processes, for small scale production, RME is shown to be up to 90% more energy efficient.

This less energy intensive emulsification process could deliver a significant reduction in manufacturing costs.

The structure of many food products is emulsion-based, and it is the structure that affects mouth feel, flavour and texture, and even shelf-life. A uniform structure across the mixture means household foods such as milk, mayonnaise and salad dressing are of a high quality.

Medicinal, agrochemical and cosmetic products are also emulsion-based. The sales of emulsion-based products are globally widespread and in high demand.

Emulsions are typically manufactured by the mechanically breaking down droplets, for example through high shear mixing or sonication. A surfactant is added to prevent the smaller droplets from recoalescing. Large scale processes are very energy intensive.

David Lloyd, an EngD student from the University of Birmingham, UK, presented his work at the 8th European Workshop on Food Engineering and Technology, which took place in April at the German Institute of Food Technologies (Deutsches Institut für Lebensmitteltechnik e.V., DIL), Quakenbrück, to an international committee of academic and industrial experts.

This annual workshop is organised by the EFCE's Section on Food in cooperation with the European Federation of Food Science and Technology (EFFoST).

The Section Chair, Professor Dietrich Knorr, said: "David's work contributes to a better understanding of the important process mechanisms that determine emulsion microstructure using low energy rotating membrane technology."

"If this technology can be applied at a large scale, and compete with the other established technologies, it could have a major impact on the food industry."

David Lloyd said: "It came as such a pleasant surprise to have been named as the recipient of this esteemed award. It has definitely encouraged me to continue my engineering career within the food industry."

The award includes a €2,500 cash prize sponsored by Nestlé.

Ends

Caption:

Picture shows (L-R): Professor Dietrich Knorr, Technical University of Berlin, DE; Dr. Volker Heinz, DIL; winner David Lloyd; Dr. Ulrich Bobe, Nestlé; 1st runner-up Erika Georget, Leibniz University Hannover, DE; 2nd runner-up Delphine Huc, IRSTEA, FR.

Related links

[EFCE media centre](#)

[European Workshop on Food Engineering and Technology](#)

Notes to media:

For further information, please contact:

Trish Regis, information and communications officer, EFCE

tel: +44 (0)1788 534435

email: pregis@icheme.org

About the Julius Maggi Research Award

The award, sponsored by Nestlé's Product Technology Centre in Singen, is a prize of 2,500 Euros which is awarded to the best scientific paper presented by a PhD student at the annual European Workshop on Food Engineering and Technology. Selection criteria of the international jury include the practical importance to the food industry, the high quality, and the presentation in a clear and convincing way. The winner and runner-ups are also invited to spend a week and present their research at the Nestlé's Product Technology Centre in Singen.

About EFCE

Founded in 1953, The European Federation of Chemical Engineering (EFCE) is a non-profit-making association, whose object is to promote co-operation in Europe between non-profit-making professional scientific and technical societies in 30 countries for the general advancement of chemical engineering and as a means of furthering the development of chemical engineering. See www.efce.org

About chemical engineers

Chemical, biochemical and process engineering is the application of science, maths and economics to the process of turning raw materials into everyday products. Professional chemical engineers design, construct and manage process operations all over the world. Oil and gas, pharmaceuticals, food and drink, synthetic fibres and clean drinking water are just some of the products where chemical engineering plays a central role.