European Federation of Chemical Engineering
Europäische Föderation für Chemie-Ingenieur-Wesen
Fédération Européenne de Génie Chimique

Press release

Presse-Information ● Information de presse

3/2016
22 April 2016

http://www.efce.org

Novel approach to particulate suspensions wins EFCE award

Christopher Ness has been awarded the **2016 Excellence Award in Mechanics of Particulate Solids** of the European Federation of Chemical Engineering (EFCE) for a series of four outstanding papers, published in conjunction with his PhD studies on "*Suspension rheology and extrusion studied by discrete element simulations*".

Christopher Ness, a PhD student at the University of Edinburgh, is working to better understand how particulate suspension rheology can be practically applied in paste extrusion. Working in the Granular Mechanics and Industrial Infrastructure Group in the School of Engineering, in collaboration with Johnson Matthey and the Soft Matter Physics Group, he uses discrete element method (DEM) computational modeling and shear flow simulations and experiments to better understand paste flow through a constriction geometry. He found that friction between particles can cause fluctuating velocities and localised jamming, which in turn cause common problems with extrusion such as surface feathering. The findings will contribute significantly to the predictive optimisation of future extrusion processes.

The four papers for which he won the award show how DEM modeling and fluid dynamic interactions between particles allow a better understanding of the flow of saturated granular solids or concentrated suspensions.

Commenting on the 'remarkable' and 'original' research, the EFCE Working Party on Mechanics of Particulate Solids, which judged the entries for the award, said: "Ness uses modeling modeling as a clever instrument to understand the physics at the microscopic level of the systems analyzed. The approach also provides significant information on the equations that could be used as constitutive equations to describe each of the heterogeneous system studied as continuum at the macroscopic scale."
The judges noted that Ness' work will provide scientists and engineers working with dense suspensions of particulate systems with a very useful reference to inform future research and development.

Comprising a certificate and cash prize of 1,500 Euros, the award was presented on 20 April 2016 during the plenary session of the International Congress on Particle Technology – PARTEC 2016 – in Nuremberg, Germany.

Related links

EFCE Media Centre
EFCE Excellence Award in Mechanics of Particulate Solids

Notes to media:

For further information, please contact:

Claudia Flavell-While
tel: +44 (0)1788 534422
email: Claudia@icheme.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.

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