

MINUTES

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Annual Meeting of the EFCE Working Party “Mechanics of Particulate Solids”
24.04.2013 in Nuremberg, Germany.

Abstract

The Annual meeting of the EFCE Working Party Mechanics of Particulate Solids (WPMPS) took place on April 22, 2013, h 14.00 Room Lissabon Nürnberg Messe, Nuremberg, Germany. The Meeting was held in conjunction with the 2013 Partec Conference. Dr Pablo García-Triñanes, of the conference organizing committee, introduced the meeting.

Dr Pablo García-Triñanes (The University of Surrey, Guildford, UK), Dr. Martin Morgeneyer (Université de Technologie de Compiègne, Compiègne, France) and Dr Saioa Villodas (Symaga, Madrid, Spain) gave a presentation on their institution and scientific activity.

Advances were presented on the current WP tasks as follows:

- 1) Validation of DEM Simulation: Dr. Tom Simons of BASF SE, reported on the advancements of the PARDEM project (www.pardem.eu), funded for ~3.3 million EUR in the EU 7th Research Framework Programme, Marie Curie Initial Training Network, for the period 2009-2013. 13 PhD and 2 Post Doc positions were being trained. One PhD already graduated, the majority would graduate late 2013 or early 2014. Other external participants as early stage researchers were still being invited to take part to organized events and would be partially sustained in their expenses. The PARDEM website (www.pardem.eu) created in 2009 was redesigned to be maintained beyond PARDEM. The first PARDEM Newsletter has recently been published. Seven Network Events were delivered so far. The final event was programmed for September 2013. Training and research milestones and deliverables were fully accomplished to date. A new proposal on Multiscale Analysis of multiPhase Particulate Processes (T-MAPPP) was submitted in November 2012. T-MAPPP had recently been awarded €4.05M in a new FP7 ITN. The scientific goal is to establish multiscale analysis – linking a macroscale granular process to information at particle scale. It involved five universities/research organisation and ten private companies.
- 2) Wall friction project: Dr David Craig, of Jenike and Johanson Inc., presented some slides prepared by Dr Eddie Mc Gee of Ajax on the state of the wall friction project. Containing a summary of the status of the project: a) Ooi, McGlinchey and McGee were reassessing the raw data from the first round of tests; b) as we were all using the same powder, wall materials and conducting the tests using the same test procedure, then the influence of individual test devices and/or the operators needed to be assessed. b) A discussion took place: Acrylic Powder (homogeneous, hand sieved, inert) had been chosen as a free flowing material (but trusted to be non segregating). However some experience reported difficulties with coarser free flowing materials, such as jamming between cell ring and lid or trapping underneath edge of ring and wall. It was therefore advised to carry out another round of tests with the fullest participation on a cohesive fine powder.

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- 3) Flow properties of biomass: Prof. Álvaro Ramírez-Gómez, of Universidad Politécnica de Madrid, presented the activity carried by the WP members working on projects related to the study of biomass flow. After a summary on the activities of the last years and recalling that the group on biomass had joined in 2011 with a demonstration project called Bio4Flow involving 4 partners and funded for by Processum Biorefinery Initiative. The activities in 2012 have continued mainly with the research of possible funding sources for the biomass related activities within the group. The most important action was an application for Funding a COST network entitled “Towards the Security of Supply of Agricultural Biomass Feedstock – Efficiency and Safety improvements for 2020 (EFFSAF2020)” involving 13 partners from: Spain, Italy, Sweden, United Kingdom, France, Germany, Portugal, Denmark, Poland, Serbia, Turkey, Israel and Australia. The first application was made in October 2012 and, in spite of a good evaluation was not funded. For this reason the application was re-edited presented again in March 2013. At the time of the meeting the application was still under review.
- 4) Powder Flow Tester: Dr Robert Berry, of the University of Greenwich, presented the some results of a work carried out at the Wolfson Center of the University of Greenwich on the Economic Powder Flowability Tester (PFT) developed in cooperation by Wolfson Center of the University of Greenwich and Brookfield. The scope of the work was an Assessment on the Brookfield Powder Flow Tester and in particular to highlight the characteristics of the tester and the testing procedures.
- 5) Internal friction project: Dr David Craig , of Jenike and Johanson Inc., presented some slides prepared in collaboration with Mr Tim Bell of Du Pont to highlight some issues related to the Jenike and, especially, to the ring shear tester procedure that might have been faced by the WP in order to have a greater consciousness of the scientific meaning and of the correctness of some empirical practice often carried out in the measurement procedure. Among these the customary applied “rescaling” procedure to correct the effect of the changing value of the pre-shear stress with in the subsequent sample preshearing. Another issue was the inclusion for the evaluation of the static yield locus of the shear points with consolidation values lower than the value of the tangent point between the unconfined Mohr circle and the static yield locus itself, or similarly of the shear points with consolidation values higher than the value of the tangent point between the critical state Mohr circle and the static yield locus itself. Some discussion was opened at this point and the WP agreed on the necessity to identify first which are, within the WP the most used tester and for what purpose. Dr Morgeneyer volunteered to prepare a survey to circulate within the WP to better understand these issues.

Prof. Ramírez-Gómez was elected as WP Chairman in the period 2014-2016.

Dr Johannes Härtl of Basf SE, Germany and Dr Andrea Santomaso of the University of Padova, Italy were elected new members.

The next annual meeting will be held in in in Prague on August 2014. The precise date will be defined in the following months. On 18-20 September, a PARDEM Symposium would take place within the Particles 2013 Conference in Stuttgart (D).