

MINUTES

01.11.2012
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Annual Meeting of the EFCE Working Party “Mechanics of Particulate Solids”
09.09.2012 in Friedrichshafen, Germany.

Abstract

The Annual meeting of the EFCE Working Party Mechanics of Particulate Solids (WPMPS) took place on September 09, 2012 in Friedrichshafen, Germany. The Meeting was held in conjunction with the 7th International Conference for Conveying and Handling of Particulate Solids - CHoPS 2012. The WPMPS ran a Technical and a Business session. Dr Harald Wilms and Mr Hans Schneider of Zeppelin Silos & Systems GmbH introduced the meeting.

Prof. Torbjörn Lestander (Swedish University of Agricultural Sciences, Umeå, Sweden), Dr. David Craig (Jenike and Johanson, Inc., Tyngsboro MA, USA) and Prof Álvaro Ramírez-Gómez (Technical University of Madrid, 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: Prof. Jin Ooi of the University of Edinburgh 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. 15 oral presentations would be given during 4 CHoPS session, plus several poster presentations. Other external participants, as early stage researchers, were still being invited to take part to organized events and were partially sustained in their expenses. The PARDEM website (www.pardem.eu) created in 2009 was being redesigned to be maintained beyond PARDEM. The first PARDEM Newsletter had recently been published. Five Network Events were delivered so far. Other 3 events were programmed for the coming year. Training and research milestones and deliverables were fully accomplished to date.
- 2) Wall friction project. Dr Eddie McGee of Ajax presented on the results of the work carried out by the WP within the project aiming at assessing on the reproducibility of the wall friction measurements. In the last years the labs involved in the project carried out the wall friction measurements with similar specimens of silo walls and of a polymer free flowing powder, using their own instrumentation and following a previously established testing procedure. A new interpretation of results was presented this year which indicated that, in spite of significant improvement of results obtained with the newly proposed procedure, perhaps the effective influence of individual test devices and/or the operators needed to be assessed in order to find further design or procedure specifications. The group agreed in continuing the activities to complete this project.
- 3) Dr Sylvia Larsson of the Swedish University of Agricultural Sciences presented the activity carried by the WP members within the demonstration project Bio4Flow involving four partners and funded by Processum Biorefinery Initiative, a bundle industry companies in

the Örnsköldsvik area in Sweden within the pulp, paper, chemical and energy sector. The project included testing on 3 types of biomass. Experiments should include characterization of powders and in particular of: 1) particle properties (size and shape), 2) flow properties (yield tests, arching in experimental silo) and 3) risk of powder explosivity. Scientific scope of the project was the evaluation of the applicability of the test methods. A Second purpose of the project was to demonstrate the ability of the group to cooperate. BIO4FLOW was chosen and awarded as a “comet” project of a StarCluster (Strategic Research Targets for 2020 – Collaboration Initiative on Biorefineries). Dr Robert Berry of the Wolfson Centre University of Greenwich presented the activities carried out at Greenwich with biomasses and the equipment purposely developed. He also presented an originally developed instrumentation for the measurement of the tensile stress, which showed to provide consistent results with arching experiments carried out with biomasses, also within the activity of Bio4Flow.

- 4) Mr Tim Bell of Dupont presented the results of a work carried out at DuPont Central Research & Development on the Economic Powder Flowability Tester (PFT), an instrument 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 a comparison between the results of the measurement of the powder flow properties with the same properties evaluated with other shear testers. Tests were carried out on several powders with different characteristics of flowability.

Dr Hermann Feise, Dr Harald Wilms and Prof. Gisle Enstad announced their resignation for changed professional status. In recognition of their past and intense activity within the WP, the WP elected then has honorary members.

Mr Hans Schneider of Silos & Sys, GmbH, Germany, Dr Songxiong Ding of TelTek, Norway, Dr Martin Morgeneyer of Université de Technologie de Compiègne, France, Dr Pablo García-Triñanes of Universidad de Santiago de Compostela, Spain, Dr Saioa Villodas of Symaga, Spain, Dr Sylvia Larsson of the Swedish University of Agricultural Sciences, Sweden, Dr Diego Barletta of the University of Salerno, Italy, Dr Robert Berry of the Wolfson Center at the University of Greenwich, UK were elected new members. Dr David Craig of Jenike and Johanson Inc., MA USA, was elected guest.

The next annual meeting will be held in Nurnmberg/Germany in conjunction with the Partec Conference to be held in Nurnmberg in April, 23-25, 2013. The meeting is tentatively fixed on Monday April 22, 2012. More info are available on the conference website at <http://www.partec.info/>.