

**MINUTES**

01.06.2010  
Prof. Massimo Poletto  
Dept of Chemical and Food Eng.  
University of Salerno  
Via Ponte don Melillo  
Fisciano (SA) - ITALY  
Tel.: +39 089 964 132  
Fax: +39 089 964 057  
mpoletto@unisa.it

**Annual Meeting of the EFCE Working Party “Mechanics of Particulate Solids”**  
**25.04.2010 in Nuremberg, Germany.**

**Abstract**

The Annual meeting of the EFCE Working Party Mechanics of Particulate Solids (WPMPs) took place on April 25, 2010 in Nuremberg, Germany. The Meeting was held in conjunction with the 6th World Conference on Particle Technology 2010-Partec 2010. The WPMPs ran a Technical and a Business session. Dr Harald Wilms, Zeppelin Silos & Systems GmbH introduced the meeting

Two new members of the working party gave a presentation of their present activity: Dr. Renee Boerefijn, Purac, The Netherlands and Prof. Alvaro Ramírez Gómez, Universidad Politécnica de Madrid, Spain.

Advances were presented on the current WP tasks as follows:

- 1) Validation of DEM Simulation: Prof. Jin Ooi, University of Edinburgh, reported on the advancements of the the PARDEM project ([www.pardem.eu](http://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 positions and 2 PostDoc positions are being assigned. The project had its kickoff meeting during which it was decided that the experiments to validate Distinct Element Models will be carried out with a well-characterised reference material of ~5mm plastic beads supplied by Dow. A summer school will be organized this year for the trained students and various courses will be carried out throughout the year.
- 2)  $K/\lambda$  Testing: Prof. Massimo Poletto, University of Salerno, presented the results of an experimental campaign carried out with the tester developed at the University of Salerno. The reported experiments were intended to find out a reproducible experimental procedure and possibly representative experimental results. Analysis of results indicates that twisting the lid of the equipment was the only way to obtain reproducible results and that with this procedure experiments tended to produce results close to the Rankine stress ratio calculated from the effective angle of the powder internal friction. The group suggested further work to verify the internal consistency of the reported results.
- 3) Flow properties of biomasses: Dr Diego Barletta, University of Salerno, presented a state of the art on the flow properties of biomasses. Solid biomasses are renewable energy sources and can be made of different materials such as switchgrass, corn stover, peanut hulls, bagasse. In energy production applications, these are often found as mixtures with traditional fossil fuel sources. These materials are typically fibrous, highly deformable, and their mechanical behaviour is strongly affected by moisture. Moisture may lubricate the material with a beneficial effect on the flow properties, but it can also soften the material and increase cohesivity with a detrimental effect on the flow properties. Conventional equipments to measure the powder flow properties are often unsuited and a number of ad-hoc apparatus were developed. These systems however are not often scientifically verified or optimized, the main reason is the limited interest in materials that often were seen as simple wastes. The possibility of using such materials as renewable energy sources has

Prof. Massimo Poletto

increased the interest and better technologies are required. The group expressed high interest in the subject and agreed that some financing for a joint project might foster the research of the group.

- 4) Economical and easy to use powder flowability tester: Prof. Michael Bradley, University of Greenwich, for a second time after the Brisbane meeting, presented the results of the project developed by the University of Greenwich and the Brookfield Viscometers Ltd company (with the support of Cadbury, United Biscuits, GSK, Kerry Ingredients, UK DEFRA) to develop a new shear tester which could be competitive to others with respect to price. The tester will not be proposed on the market specifically for the hopper design application, but as a more general flowability tester for bulk solids. Prof. Bradley asked the WP to spread the news and to promote the use of the new tester and the group agreed to be available to test the performance of the new tester.
- 5) Wall friction project: Prof. Michael Bradley delivered the report by Dr. Eddie McGee on the stage of advancement of the project. Final version of the experimental procedure, based on the ASTM D6128-06 and emended according to the results of the Workshop held last year in Brisbane at the Chops 2009 meeting, had been distributed. Also the wall coupons from Zeppelin have been delivered. The materials coming from DuPont, a free flowing powder of a filled acrylic polymer are being distributed. It is hoped that the material distribution can be completed for this summer and the experiments be carried out within the next autumn.

Prof. Poletto was re-elected chairman for a second mandate in the period 2011-2013.

The new membership rules and the internal criteria for election of members, guest and honorary members were discussed.

The EFCE Excellence Award in Mechanics of Particulate Solids 2010 went to Dr. Johannes Härtl of BASF. Dr. Johannes Härtl who carried out his PhD project "A study of Granular Solids in Silos with and without an Insert" under the guide of Prof. J. Ooi and spent a period at the Telmark University under the guide of Prof. G. Enstad. Dr Joannes Härtl will present his work in two separate sessions (T0941 and T0127) of the WCPT conference. The award handover will take place during the Gala dinner of the same conference on April 27.

The WPMS will support the organization of the 8th European Congress of Chemical Engineering will be 25-29 September 2011 in Berlin. The proposal is to take charge of a session called *Solids Processing*, and to share the workload with the Working Parties which are interested in solids processing, i.e. Agglomeration, Crystallisation, Comminution & Classification, Drying, Mixing.

It was decided that the annual meeting would be held in Berlin in conjunction with the ECCE8 conference in September 2011. The PARDEM group informed that they would have an informal meeting in Ludwigshafen, January/February 2011. They will inform the WP of the exact date and will invite all the WP members to take part to this meeting.

The WP elected 6 new members, 5 guests and 6 honorary members.