

# Report on WCPT7 2014

The 7th World Congress on Particle Technology

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Beijing, China

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## The 7th World Congress on Particle Technology was successfully held from 19th to 22nd of May 2014, at the Beijing International Convention Center, China.

With 1256 attendees at the conference, and 1018 lectures, there were a lot of opportunities to network and explore the latest studies on particle and powder technologies.

Themes of the conference are grouped into six different areas:

- Topic 1: Particle and Particle System Characterization
- Topic 2: Particle Design: Formulation and Processing
- Topic 3: Particulate System and Bulk Solids Technology
- Topic 4: Particle-Fluid System
- Topic 5: Aerosols
- Topic 6: Modeling and Simulation

The conference was officially opened on the 19th of May 2014 by Prof. Dr. Jinghai Li, Chairman of WCPT7 and member of the Chinese Academy of Sciences, China.

Plenary sessions were held in the first morning, and the first of them was given by Prof. Jonathan Seville, Dean of the University of Surrey, on 'Particle-particle contacts and their influence on system behaviour'.

There were 708 presentations, which gave speaker the opportunity to present his recent work in a specific area, and also include keynote talks and invited talks given by invited experts.

During the morning of Thursday 22nd there were other plenary sessions followed by the award and closing ceremony.

The research group of the University of Surrey attending the congress was led by Professor Jonathan Seville, Dean of the Faculty of Engineering and Physical Sciences.

The group was formed by Professor Chuan-Yu Wu, Dr Chunlei Pei, Dr Pablo García-Triñanes, Mr. Simone Loreti, Mr. Jiecheng Yang, and Ms. Serena Schiano.

They made their contributions to the conference with the following oral presentations:

Professor Chuan-Yu Wu

*A theoretical model for the impact of a particle with a powder bed*

Dr Chunlei Pei

*Contact electrification of particles with arbitrary shapes in a rotating drum*

Dr Pablo García-Triñanes

*1 - Enhancing the activation of silicon carbide particles with gas-phase coating of aluminium oxide*

*2 - Determination of hydrodynamic flow and particle motion in dense particle suspensions: Application in solar receivers*

Mr. Simone Loreti

*DEM modeling of fragmentation of pharmaceutical ribbons during impact*

Mr. Jiecheng Yang

*DEM analysis of the effects of electrostatics on particle mixing for carrier based dry powder inhaler formulations*

Ms. Serena Schiano

*The impact of roll compaction on mechanical properties of pharmaceutical powders*

I presented my work on *DEM modeling of fragmentation of pharmaceutical ribbons during impact*, in which I gave an introduction of IPROCOM and main goals of my project in addition to a brief summary of my current state of research and some results on:

- DEM modeling of ribbon breakage during impact with JKR contact model and animations.
- Introduction of a "Modularity" function to characterise the formation of clusters in

particle assembly.

- Correspondence between clusters detected with Modularity and the contact force network.

During the conference, i attended several oral presentations, some of them were listed in the Table.1.

In the poster session (153 posters were presented) I found a very interesting poster coming from the research group of the University of Leeds:

Massih Pasha, et al.  
*Bulk compression of Elasto-Plastic and Adhesive Particles*

They proposed a simple linear elasto-plastic and adhesive contact model for spherical particles which is less time-consuming than other models.

The conference has been an important experience of professional growth, a great opportunity to embark on research world, focusing on the emerging trends in the

research of particle technology, and to improve our communication skills.

it is worth noticing that interactions with other researchers were very useful to receive their feed back and comments on my work, and to obtain new ideas from other oral presentations and plenary talks.

I really appreciated comments and advices from Dr. Kobylka Rafal, Dr. Subhash C. Thakur, and Dr. Michele Marigo.

In addition we had the possibility to explore and visit the most popular cultural and historical places in Beijing; including the Forbidden City, the Summer Palace of the Emperor, and the very famous Chinese Great Wall.

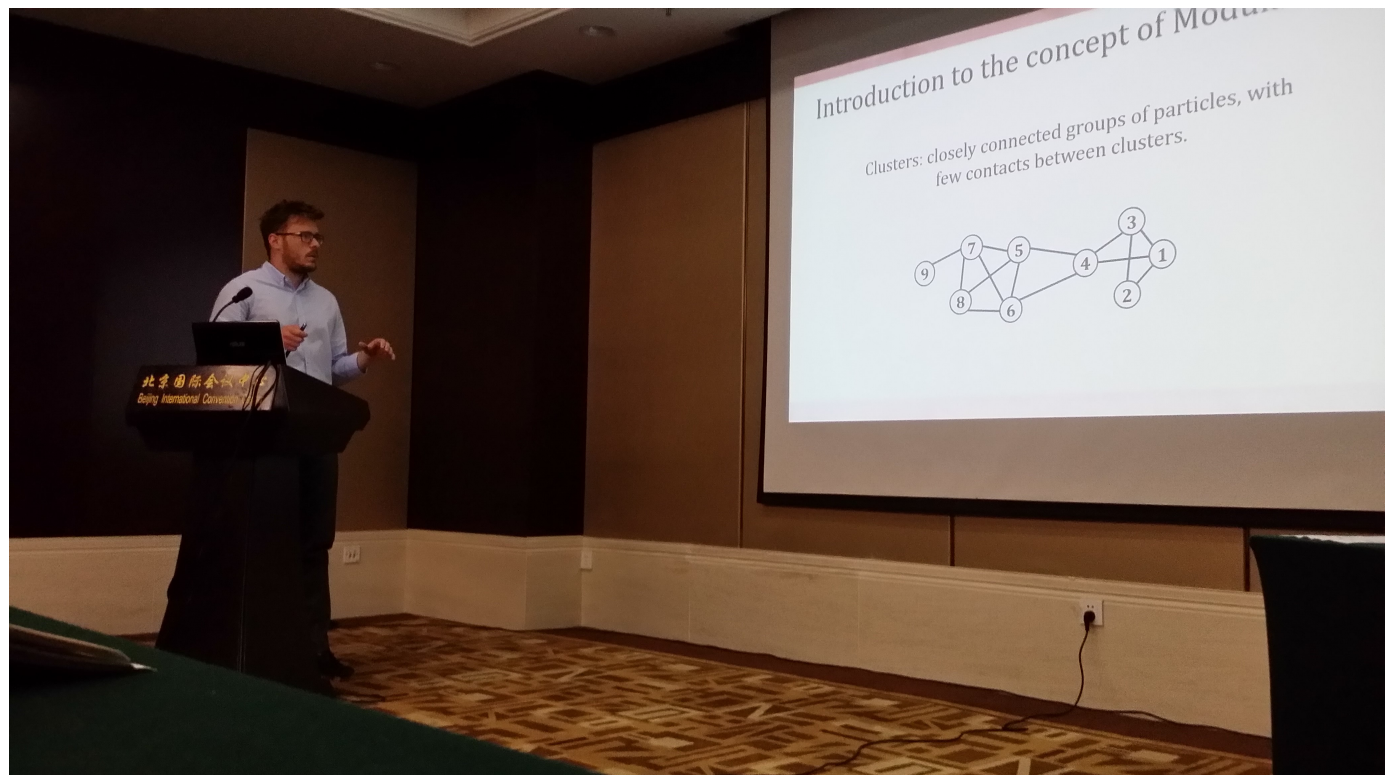


Table.1 Oral presentations attended during the WCPT7

Presenter	Affiliation	Title of the presentation
Stefan Luding	University of Twente	Application of discrete particle method towards cohesive powder simulation
D. R. Williams	Imperial College London	Cohesiveness of fine pharmaceutical powders and their surface energy
Robert Wilson	Imperial College London	A study of adhesion models in DEM simulations
Jin Y. Ooi	University of Edinburgh	Interpretation of particle breakage under compression using X-ray computed tomography and digital image correlation
M. Yoshida	Okayama University	Effects of cohesiveness and coverage states for admixed particles on packing fractions
Subhash C. Thakur	Procter and Gamble	Micromechanical study of effects of DEM model parameters on bulk behaviour of cohesive solids in uniaxial test simulation