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Design and Manufacture of Functional  
Microcapsules and Engineered Products

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# Conference Program

Simon Biggs

*University of Queensland, Australia*

Olivier Cayre

*University of Leeds, UK*

Orlin D. Velev

*North Carolina State University, USA*

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## *Program*

# **Design and Manufacture of Functional Microcapsules and Engineered Particles**

**April 3 - 7, 2016**

**Grand Hotel Minareto  
Siracusa (Sicily), Italy**

### Conference Chair

**Simon Biggs  
University of Queensland, Australia**

### Conference Co-Chairs

**Olivier Cayre, University of Leeds, UK**

**Orlin D. Velev, North Carolina State University, USA**



**Engineering Conferences International**

**32 Broadway, Suite 314**

**New York, NY 10004, USA**

**Phone: 1-212-514-6760**

**[www.engconfintl.org](http://www.engconfintl.org) – [info@engconfintl.org](mailto:info@engconfintl.org)**

**Grand Hotel Minareto**

**Via del Faro Massolivieri, 26 96100 Siracusa (Italy)**

**Tel. +39 0931.721222 - Fax +39 0931.721555**

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## **Sunday, April 3, 2016**

16:30 – 18:00	Conference check-in
18:30 – 19:30	Reception (Gazebo Hall)
19:30 – 20:30	Dinner

### **Notes**

- *All technical sessions will be in Archimedes Hall. Poster sessions will be in Archimedes and the foyer.*
- *All meals will be in the Nesos Restaurant.*
- *Audiotaping, videotaping and photography of presentations are prohibited.*
- *Speakers – Please have your presentation loaded onto the conference computer prior to the session start (preferably the day before).*
- *Speakers – Please leave at least 3-5 minutes for questions and discussion.*
- *Please do not smoke at any conference functions.*
- *Turn your mobile telephones to vibrate or off during technical sessions.*
- *Please write your name on your program so that it can be returned to you if lost or misplaced.*
- *After the conference, ECI will send an updated participant list to all participants. Please check your listing now and if it needs updating, you may correct it at any time by logging into your ECI account.*

## **Monday, April 4, 2016**

07:30 – 09.00 Breakfast

09:15 - 09:30 Opening Remarks - Conference Chair and ECI Liaison

### **Session 1**

09:30 - 10:00 **Novel particles based on strong intermolecular interactions between polymers and low molecular weight molecules**  
Krassimir Velikov, Unilever R&D Vlaardingen, Netherlands

10:00 - 10:25 **Construction and optical-electrical properties of inorganic/organic heterojunction nanostructures**  
Huibiao Liu, Institute of Chemistry, Chinese Academy of Sciences, China

10:25 - 10:50 **Controlling the nanotoxicity of polyelectrolyte-functionalized titania nanoparticles**  
Vesselin Paunov, University of Hull, United Kingdom

10:50 - 11:20 Coffee Break

### **Session 2**

11:20 - 11:45 **Remote manipulation with microlabets and control of enzymatic reaction**  
Ales Zadrazil, University of Chemistry and Technology, Czech Republic

11:45 - 12:10 **Plasma functionalization of nano- and micro-sized particles**  
James Bradley, University of Liverpool, United Kingdom

12:10 - 12:35 **Some molecule-based materials low dimension nanostructures**  
Yuliang Li, Institute of Chemistry, Chinese Academy of Sciences, China

12:35 - 13:00 **Functionalized alginate microparticles for fluid flow visualization**  
Anton Vernet, Universitat Rovira i Virgili, Spain

13:00 - 14:00 Lunch

14:00 - 16:00 *ad hoc* sessions / Free time

16:00 - 16:30 Coffee Break

### **Session 3**

16:30 - 17:00 **Encapsulating lipids in self-assembled polymeric and inorganic matrix particles**  
Clive Prestidge, University of South Australia, Australia

17:00 - 17:30 **Scalable liquid-based manufacturing of new classes of particles with special shape and enhanced functionality**  
Orlin Velev, North Carolina State University, USA

**Monday, April 4, 2016 (continued)**

- |               |  |
|---------------|--|
| 17:30 - 17:55 | <b>Designing microcapsules to save energy in buildings</b><br>Halime Paksoy, Cukurova University, Turkey |
| 17:55 - 18:20 | <b>Toroidal drops in viscous flow</b><br>Avinoam Nir, Technion Institute of Technology, Israel           |
| 18:20 - 18:45 | <b>A scalable platform for functional nanomaterials</b><br>Simeon Stoyanov, Unilever, Netherlands        |
| 19:00 – 20:30 | Dinner   |
| 20:45 - 21:45 | Poster Session / Social Hour   |



**Tuesday, April 5, 2016**

07:30 - 09:00

Breakfast

**Session 4**

09:00 - 09:30

**Encapsulation of biological materials**

Alexander Routh, University of Cambridge, United Kingdom

09:30 - 10:00

**Developing microcapsule membranes for the encapsulation of active ingredients of varying molecular weights**

Olivier Cayre, University of Leeds, United Kingdom

10:00 - 10:25

**Biocompatible microcapsules functionalized with inorganic nanoparticles for enhanced external triggering via light and ultrasound**

Hui Gao, Queen Mary University of London, United Kingdom

10:25 - 10:50

**Engineering microencapsulated PCM slurry with improved performance for cold storage**

Fideline Tchuenbou-Magaia, University of Birmingham, United Kingdom

10:50 - 11:20

Coffee Break

**Session 5**

11:20 - 11:50

**Microencapsulation of probiotic bacteria for gastrointestinal delivery**

Vitaliy Khutoryanskiy, University of Reading, United Kingdom

11:50 - 12:15

**pH-responsive microcapsules synthesized via a water-in-oil-in-water emulsion template**

Calum T. J. Ferguson, University of Leeds, United Kingdom

12:15 - 12:40

**Containers for drug delivery based on vaterite particles**

Bogdan Parakhonskiy, University of Ghent, Belgium

12:40 - 14:00

Lunch

14:00 - 21:00

Excursion to Siracusa

**Wednesday, April 6, 2016**

07:30 - 09:00 Breakfast

**Session 6**

09:00 - 09:30 **Responsive microcapsules from complex emulsions**  
Andre R. Studart, ETH Zurich, Switzerland

09:30 - 10:00 **Functional microparticles for electrophoretic display fluids**  
Mark Goulding, Merck, United Kingdom

10:00 - 10:25 **Self-assembly of cyclodextrins at the oil-water interface: surfactant-free emulsions and cyclodextrinosomes**  
Vesselin Paunov, University of Hull, United Kingdom

10:25 - 10:50 **Stimuli sensitive microcapsules with macroporous polymer shells**  
Eve Loiseau, ETH Zurich, Switzerland

10:50 - 11:20 Coffee Break

**Session 7**

11:20 - 11:45 **Loading of silica nanoparticles in block copolymer vesicles during polymerization-induced self-assembly: encapsulation efficiency and thermally-triggered release**  
Charlotte Mable, University of Sheffield, United Kingdom

11:45 - 12:10 **Heterogeneous liposome assemblies: one goal, different paths**  
Jaroslav Hanuš, University of Chemistry and Technology, Prague, Czech Republic

12:10 - 12:35 **Impermeable metal microcapsules for diagnostic/therapeutic applications**  
Alison Tasker, University of Queensland, Australia

12:35 - 13:00 **Multi-gram preparation of pH-responsive DX MG colloidsomes by a scalable approach**  
Wenkai Wang, University of Manchester, United Kingdom

13:00 - 14:00 Lunch

14:00 - 16:00 *ad hoc* sessions / Free time

16:00 - 16:30 Coffee Break

**Wednesday, April 6, 2016 (continued)**

**Session 8**

- |               |  |
|---------------|--|
| 16:30 - 17:00 | <b>Engineering sensorial experiences by modulating fragrance microcapsule mechanics and morphology</b><br>Huda A. Jerri, Firmenich, USA  |
| 17:00 - 17:30 | <b>Development of perfume microcapsules with triggered release by mechanical forces</b><br>Zhibing Zhang, University of Birmingham, United Kingdom   |
| 17:30 - 17:55 | <b>Design and fabrication of remotely controlled microcapsules for on-demand synthesis and release of unstable actives</b><br>Frantisek Stepanek, University of Chemistry and Technology, Prague, Czech Republic |
| 17:55 - 18:20 | <b>Facile two-step encapsulation of small species in a metallic shell</b><br>Kirsty Stark, University of Leeds, United Kingdom   |
| 17:00 – 18:00 | Pre-Banquet reception  |
| 19:30 - 21:30 | Conference Banquet   |

**Thursday, April 7, 2016**

07:30 - 09:00 Breakfast

**Session 9**

09:00 - 09:30 **pH-Responsive hollow particles prepared by co-solvent assisted solvent evaporation: From dispersions to gel composites**  
Brian Saunders, University of Manchester, United Kingdom

09:30 - 09:55 **Microcapsules for carbon capture from power plants**  
Joshuah K. Stolaroff, Lawrence Livermore National Laboratory, USA

09:55 - 10:30 Coffee Break

**Session 10**

10:30 - 11:00 **Controlled adsorption of metallic nanoparticles on polymeric microcapsules with a view to growing secondary continuous metal films**  
James Hitchcock, Leeds University, United Kingdom

11:00 - 11:25 **Aqueous core colloidosomes with a metal shell**  
Qian Sun, University of Cambridge, United Kingdom

11:25 - 11:50 **Study of the particle formation and morphology of single mannitol-water droplets depending on the drying conditions**  
Thomas Hellwig, Institute for Technical and Macromolecular Chemistry, University of Hamburg, Germany

11:50 - 12:10 **Closing Remarks**

12:30 - 14:00 Lunch

13:40 Departures

## List of Posters

1. **Study of the particle formation and morphology of single mannitol-water droplets depending on the drying conditions**  
Thomas Hellwig, University of Hamburg, Germany
2. **Influence of operating parameters of a spray tower on spray polymerization product properties**  
Katharina Franke, University of Hamburg, Germany
3. **Salt-hydrogel marbles and hollow-shell microcapsules for reduced salt intake**  
Vesselin N. Paunov, University of Hull, United Kingdom
4. **Construction of bionanoparticles with the use of a recombinant DNA vector-enzymatic system, containing artificial poliepitopic proteins, for the delivery of new generation vaccines**  
Piotr M. Skowron, University of Gdansk / BioVentures Institute Ltd., Poznan/Gdansk, Poland
5. **Microbiological characterization of psychro-mezo-thermophilic endospore-producing Bacillus species isolated from industrial probiotics particles**  
Piotr M. Skowron, University of Gdansk, Poland
6. **Stimuli sensitive microcapsules with macroporous polymer shells**  
Eve Loiseau, ETH Zurich, Switzerland
7. **Probing nanoparticle interactions with biological system for drug delivery applications**  
Beatrice Cattoz, University of Greenwich, United Kingdom
8. **Controlling competitive and synergistic interactions in formulations**  
Omar Mansour, University of Greenwich, United Kingdom
9. **Microencapsulation of magnesium and boron powders for the synthesis of magnesium diboride**  
Jung-Ho Ahn, Andong National University, South Korea
10. **Facile synthesis of self-healing microcapsules**  
David Moore, ETH Zurich, Switzerland