Particulate Processes
in the Pharmaceutical Industry III

24-29 July 2011
Hotel Grand Chancellor Surfers Paradise
Gold Coast, Australia

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University of New South Wales, Australia

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ANALYTICAL SOLUTIONS
AUSTRALIA
Sunday, July 24, 2011

16:00 – 18:00   Conference Check-in
18:00 – 19:00   Welcome Reception
19:00 – 21:00   Opening Dinner (Buffet)

Monday, July 25, 2011

07:00 – 08:15  Breakfast
08:15 – 08:30  **Conference Welcome**
   Prof. Aibing Yu, Conference Chair
   Tressa Gaffaney, ECI Technical Liaison
08:30 – 09:10  **Plenary Speaker: Prof. James N. Michaels**
   DEVELOPMENT OF MATERIAL ATTRIBUTE DESIGN SPACES FOR
   PARTICULATE DOSAGE FORMS
09:10 - 09.40  **Keynote Presentation: Dr. Gordon Xu**
   “CONTROL PREPARATION OF LAYERED DOUBLE HYDROXIDE
   NANO PARTICLES AS EFFICIENT DELIVERY VEHICLES OF GENES AND
   DRUGS”
09:40 – 10:00  Michel Baron
   “GREENER PHARMACY USING SOLVENT-FREE SYNTHESIS”
10:00 – 10:20  Prof. Chuanbin Wu
   “ULTRA-FINE PARTICLE PROCESS SYSTEM (UPPS) AND ITS
   APPLICATION IN THE DEVELOPMENT OF PHARMACEUTICAL
   PRODUCTS”
10:20 – 10:50  Coffee break
10:50 – 11:20  **Keynote Presentation: Prof. Huizhou Liu**
   “PHARMACEUTICAL RELEASE PARTICULATE PROGRESS IN CHINA:
   FABRICATION OF STIMULT - RESPONSIVE MAGNETIC PARTICLES”
11:20 – 11:40  Martin Wijaya Hermanto
   “IMPLEMENTATION OF FBRM FOR ACHIEVING CONSISTENT PRODUCT
   QUALITY IN COMBINED ANTISOLVENT-COOLING CRYSTALLIZATION”
11:40 – 12:00  Ron Tau Yee Lim
   “DISSOLUTION ENHANCEMENT OF INDOMETHACIN VIA
   AMORPHIZATION USING SUPERCritical, CO-PRECIPITATION
   PROCESSING AND CO-MILLING”
Monday, July 25, 2011 (continued)

12:00 – 12:20  David A V Morton
“CONTROL OF PARTICLE ENGINEERING OF A MANNITOL-BASED
POWDER FORMULATION

12:20 – 12:40  Frantisek Stepanek
“FABRICATION AND STRUCTURAL CHARACTERISATION OF CHEMICAL
ROBOTS FOR TARGETED DRUG DELIVERY”

12:40 – 13:00  Thanh T. Nguyen
“A DENSITY BASED SEGMENTATION METHOD TO DETERMINE THE
COORDINATION NUMBER OF A PARTICULATE SYSTEM”

13:00 – 14:00  Lunch

14:00 – 15:30  ad hoc discussions / free time

15:30 - 16:10  Plenary Speaker: Prof. Jinghai Li
“MESO - SCALE MODELING - A KEY TO REAL - TIME SIMULATION OF
PARTICLE - FLUID SYSTEMS”

16:10 – 16:40  Coffee break

16:40 – 17:10  TECHNICAL SESSION II (Coating/Drying)

16:40 – 17:10  Keynote Presentation: Kohsaku Kawakami
“PARTICLE DESIGN USING ELECTROSPRAY DEPOSITION
TECHNOLOGY”

17:10 – 17:30  Shoucang Shen
“DISSOLUTION ENHANCEMENT OF POORLY WATER-SOLUBLE DRUGS
BY CO-SPRAY DRYING WITH MONODISPERSED MESOPOROUS
CARBON SUBMICRON PARTICLES”

17:30 – 17:50  Prof. Xiaoshu Cai
“PARTICLE SIZING WITH LIGHT AND ULTRASONIC METHODS”

17:50 – 20:00  Dinner Buffet

20:00 – 22:00  Poster Session (including brief talk @ 3min ea) + Social Hour
Tuesday, July 26, 2011

07:00 – 08:30  Breakfast

08:30 – 09:10  Plenary Speaker: Prof. G.V. Rex Reklaitis
PROGRESS AND CHALLENGES IN INTEGRATED PRODUCT AND PROCESS SYSTEMS ENGINEERING OF SOLID PHARMACEUTICALS

09:10 -

TECHNICAL SESSION III (Packing/Compaction/Tableting)

09:10 - 09.40  Keynote Presentation: Prof. Teresa Carvajal
“STRUCTURAL DIVERSITY AND EVOLUTION OF PHARMACEUTICAL AND FOOD RELEVANT MATERIALS AFTER MECHANICAL ACTIVATION: EXPERIMENTAL AND NUMERICAL METHODS APPROACH”

09:40 – 10:00  Mazel Vincent
“ORIGINAL PREDICTIVE APPROACH TO THE COMpressibility OF PHARMACEUTICAL POWDER MIXTURES BASED ON KAWAKITA EQUATION”

10:00 – 10:20  Virginie Busignies
“CHARACTERIZATION OF POROUS STRUCTURE OF PHARMACEUTICAL COMPACTS BY PGSTE-NMR IN RELATION WITH MECHANICAL PROPERTIES”

10:20 – 10:40  Zhengbiao Peng
“NUMERICAL SIMULATION OF PACKING STRUCTURE OF SEDIMENTS”

10:40 – 11:00  Coffee break

11:00 – 11:30  Keynote Presentation: Prof. Clive E. Davies
“IN-LINE MEASUREMENT OF THE BULK DENSITY OF FINE POWDER”

11:30 – 11:50  Hideya Nakamura
“EVALUATION OF CAPPING TENDENCY USING FORCE-DISPLACEMENT CURVE DURING TABLETING OF PHARMACEUTICAL Powders”

11:50 – 12:10  Chong Zhou
“A PARTICLE SCALE INVESTIGATION OF PROGRESSIVE STRAIN LOCALISATION INVOLVING SPHERICAL AND NON-SPHERICAL PARTICLES”

12:10 – 12:30  Lian Liu
“INFLUENCE OF PARTICLE SIZE ON THE DIRECT COMPRESSION OF IBUPROFEN AND ITS BINARY MIXTURES”

12:30 – 12:50  Prof. Kunio Shinohara
“ADAPTATION OF VOID SIZE DISTRIBUTION MODEL TO SIMULATED PACKED BED OF SPHERES”

12:50 - 14:00  Lunch

14:00 – 15:30  ad hoc discussions / free time
Tuesday, July 26, 2011 (continued)

15:30 - TECHNICAL SESSION IV (Granulation/Mixing)

15:30 - 16.00 Keynote Presentation: Satoru Watano
“DEVELOPMENT OF A NOVEL HIGH SPEED KNEADING GRANULATION AND ANALYSIS OF ITS GRANULATION MECHANISM BY COMPUTER SIMULATION”

16:00 - 16.20 Rachel Smith
“NUMERICAL INVESTIGATION OF LIQUID BINDER DISTRIBUTION IN FLUIDISED BED GRANULATION USING THE SINGLE PARTICLE SPRAY FLUX”

16:20 – 16:40 Peiyuan Liu
“DEM STUDY OF THE GRANULATION OF WET PARTICLES IN ROTATING DRUMS”

16:40 - 17.00 Coffee Break

17:00 – 17:30 Keynote Presentation: Dr. Karen Hapgood
“USING THE UNIFIED COMPACTION CURVE TO BRIDGE THE WET GRANULATION AND TABLETTING PROCESSES”

17:30 – 17:50 Michele Marigo
“COMPARISON OF THE MIXING EFFICIENCIES IN A CYLINDRICAL VESSEL UNDER DIFFERENT MOTIONS: ROTATING DRUM, HOOP MIXER AND TURBULA MIXER”

17:50 – 18:10 Prof. Edward White
“COMPARATIVE STUDY ON THE EVALUATION OF THE GROWTH RATE COEFFICIENT FOR IBUPROFEN IN ETHANOL BY INSITU PAT AND CONVENTIONAL TECHNIQUES”

18:10 – 20:00 Chinese Dinner/Break

20:00 – 22:00 Poster Session (including brief talk @ 3min ea) + Social Hour
Wednesday, July 27, 2011

07:00 – 08:30  Breakfast

08:30 – 09:10  Plenary Speaker: Prof. Warren H. Finlay
“RESPIRABLE POWDERS CONTAINING BACTERIOPHAGES ACTIVE AGAINST BURKHOLDERIA CEPACIA COMPLEX AND PSEUDOMONAS AERUGINOSA GRAM-NEGATIVE BACTERIA”

09:10 - 09:40  TECHNICAL SESSION V (Flow/Fluidization/Interparticle Forces)

09:10 - 09:40  Keynote Presentation: Kunikazu Moribe
“PHYSICOCHEMICAL CHARACTERIZATION OF DRUG NANOPARTICLES IN SOLID AND SUSPENDED STATES”

09:40 – 10:00  Martin Robinson
“NUMERICAL MODELLING OF FLUID-PARTICLE SYSTEMS USING TWO-WAY COUPLED SMOOTHED PARTICLE HYDRODYNAMICS AND THE DISCRETE ELEMENT METHOD”

10:00 – 10:20  Zhifu Zhou
“COMPARISON AND EVALUATION OF EVAPORATION MODELS FOR SINGLE MOVING DROPLET WITH A HIGH EVAPORATION RATE”

10:20 – 10:40  Coffee break

10:40 – 11:10  Keynote presentation: Hidehiro Kamiya
“Surface interaction control and characterization of microcapsule and fine particles for pharmaceutical application”

11:10 – 11:30  Shyamal Das
“SURFACE ENERGY DISTRIBUTION PROFILES BY INVERSE GAS CHROMATOGRAPHY TO UNDERSTAND CHANGES IN SURFACE ENERGY ON PARTICULATE SURFACES”

11:30 – 11:50  Qi (Tony) Zhou
“NANO-SCALE SURFACE ENGINEERING VIA MECHANICAL DRY COATING FOR IMPROVING FLOW, FLUIDIZATION AND AEROSOLIZATION OF FINE COHESIVE POWDERS”

11:50 – 12:10  Dr. Z.Y. Zhou
“NUMERICAL SIMULATION OF THE HEAT TRANSFER OF ELLIPSOIDAL PARTICLES IN A FLUIDIZED BED”

12:10 - 13:30  Lunch

13:30 – 21:00  ad hoc discussions / free time / optional excursion / dinner on your own
Thursday, July 28, 2011

07:00 – 08:30  Breakfast

08:30 – 09:10  Plenary Speaker: Prof. John Bridgwater  
“CREATING POWDER MIXES - A VIEW FROM STARSHIP ENTERPRISE”

09:10 - 09.40  Keynote Presentation: Prof. Jim Litster  
“QBD FOR WET GRANULATION IN PHARMACEUTICAL PROCESSING: IMPROVING MODELS FOR A PRIORI DESIGN AND SCALING”

09:40 - 10.10  Keynote Presentation: Prof. Mojtaba Ghadiri  
“ANALYSIS OF AERODYNAMIC DISPERSION OF COHESIVE CLUSTERS”

10.10 – 10:40  Keynote Presentation: Prof. Rajesh Dave  
“A PREDICTIVE FRAMEWORK FOR THE COHESION REDUCTION OF FINE PHARMACEUTICAL POWDERS VIA SURFACE MODIFICATION”

10:40 – 11:00 Coffee break

11:00 – 11.30  Keynote Presentation: Prof. Dong Chen  
“TOWARDS SYNCHRONIZATION OF THE SINGLE DROPLET DRYING STUDIES WITH REAL SPRAY DRYING STUDIES”

11:30 – 12:00  Keynote Presentation: Prof. Richard A Williams  
“SIMULATION OF MULTI-COMPONENT TABLET DISSOLUTION AND DISTINTEGRATION USING THREE DIMENSIONAL DIGITAL DISSOLUTION MODELLING METHODS”

12:00 – 12:30  Keynote Presentation: Prof. Zhibing Zhang  
“DETERMINATION OF THE ELASTIC MODULUS, YIELD STRESS, AND FRACTURE STRAIN OF ELASTIC - PLASTIC CORE-SHELL MICROCAPSULES USING MICROMANIPULATION AND FINITE ELEMENT MODELLING”

12:30 - 14:00 Lunch

14:00 - 14:30  Keynote Presentation: Prof. Tetsuya Ozeki  
“NANOPARTICLES FOR ORAL/PULMONARY DRUG DELIVERY USING SPECIAL SPRAY NOZZLES”

14:30 – 15.00  Keynote Presentation: Prof. Jennifer Sinclair Curtis  
“THE EFFECT OF PARTICLE SHAPE ON PHARMACEUTICAL AND GRANULAR FLOW PROCESSES”
Thursday, July 28, 2011 (continued)

15:00 – 15:30  
*Keynote Presentation:* Prof. Stefan Luding  
“ABOUT COHESIVE POWDERS – FROM PARTICLES TO CONTINUUM THEORIES”

15:30 – 16:00  
*Keynote Presentation:* Dr. Chuan-Yu (Charley) Wu  
“A NUMERICAL INVESTIGATION OF THE EFFECT OF SUCTION ON THE POWDER FLOW AND SEgregation DURING DIE FILLING USING DEM/CFD”

16:00 – 16:30  
Coffee break

16:30 – 17:00  
*Keynote Presentation:* Prof. Hamid Arastoopour  
“COMPUTATIONAL FLUID DYNAMIC (CFD) APPROACH TO SOLID PHARMACEUTICAL PROCESSING”

17:00 – 17.30  
*Keynote Presentation:* Prof. Jin Ooi  
“TOWARDS QUANTITATIVE DEM: VERIFICATION AND VALIDATION OF DISCRETE ELEMENT MODELING”

17:30 – 18.00  
*Keynote Presentation:* Prof. Aibing Yu  
“MODELLING AND SIMULATION OF MULTIPHASE FLOW IN CYCLONES”

18:00 – 22:00  
Gala Dinner
Friday, July 29, 2011

07:00 – 08:30  Breakfast

08:30 – 09:10  Plenary Speaker: Prof. Kim Chan
“POWDER DISPERSION MECHANISMS IN PHARMACEUTICAL INHALERS”

09:10 - 09.40  TECHNICAL SESSION VIII (Inhalation/Drug Delivery)

09:10 - 09.40  Keynote Presentation: Yuichi Tozuka
“DRAMATIC IMPROVEMENT OF DISSOLUTION AND ABSORPTION PROPERTIES OF API BY PREPARING SPRAY-DRIED POWDERS WITH TRANSGLYCOSYLATED MATERIALS”

09:40 – 10:00  Zhenbo Tong
“NUMERICAL STUDY OF THE EFFECTS OF MOISTURE AND ELECTROSTATIC CHARGE ON THE AGGLOMERATE AEROSOLISATION”

10:00 – 10:20  Dr. Handoko Adi
“AEROSOL PERFORMANCE OF LYSOZYME NANO-MATRIX PARTICLES FOR INHALATION”

10:20 – 10:40  Coffee break

10:40 – 11:10  Keynote Presentation: Prof. Guanghui Ma
“PREPARATION OF BIODEGRADABLE MICROSPHERES AND MICROCAPSULES WITH UNIFORM SIZE FOR BIOLOGICAL DRUG DELIVERY CARRIERS”

11:10 – 11:30  Mingxu Su
“DROPLET SIZE ANALYSIS IN A PHARMACEUTICAL FAT EMULSION USING LIGHT EXTINCTION AND ULTRASONIC ATTENUATION SPECTRA”

11:30 – 11:50  Lian-Yan Wang
“PREPARATION OF UNIFORM-SIZED CHITOSAN MICROSPHERES WITH AUTOFLUORESCENCE AND ITS APPLICATION IN VIVO”

11:50 – 12:00  Conclusion

12:00 – 13:00  Lunch and Departure
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