



CGOM15

SCIENTIFIC PROGRAM

THE 15TH INTERNATIONAL WORKSHOP ON
CRYSTAL GROWTH OF ORGANIC MATERIALS

JULY 23-26, 2024 | PHUKET, THAILAND

SPONSORED BY



TIC h E
Thai Institute of
Chemical Engineering
and Applied Chemistry



Tuesday 23rd, July 2024

12:00-20:00	Registration Desk Open
Tutorials and Workshop	
Session Chair: Lek Wantha	
13:30-14:30	0.08 - Thermodynamics of Crystals in Solution - Adrian Flood (Vidyasirimedhi Institute of Science and Technology, Thailand)
14:30-15:30	0.09 - Seeding - Jerry Heng (Imperial College London, UK)
15:30-15:55	Coffee Break
Session Chair: Adrian Flood	
15:55-16:55	0.10 - Process Analytical Technology (PAT) in Crystallization - Huaiyu Yang (Loughborough University, UK)
16:55-17:55	0.11 - Navigating the Complexities of Crystallisation with CrystalGrower - Nathan de Bruyn (CrystalGrower Ltd., UK)
18:00-20:00	Welcome Reception at Room Chom Talay



Session Chair: Lek Wantha	
08:40-08:50	Opening Ceremony
08:50-09:30	0.02 - Molecular Mechanism of Crystal Nucleation of Small Organic Molecules from Solution (Plenary Lecture) - Hongxun Hao (Tianjin University, China)
09:30-10:00	0.04 - BioCrystallisation (Invited Lecture) - Jerry Heng (Imperial College London, UK)
10:00-10:25	Coffee Break
Session Chair: Jerry Heng, Dhanang Edy Pratama	
10:25-10:45	0.12 - Growth "Self-Inhibition" of Irbesartan Desmotrope: Surface Intra-annular Tautomer Inter-conversion is the Culprit - Xiang Kang (Tianjin University, China)
10:45-11:05	0.13 - Symmetry-Breaking and Symmetry-Retaining Morphological Evolution of the Single Crystals of Cyclodextrin Metal-Organic Frameworks - Jiayin Zhang (Tianjin University, China)
11:05-11:25	0.14 - Deconstructing the Full 3D Facetted Growth Rates from the Temporal Capture of Crystal Growth through In-Situ Optical Microscopy - Cai Ma (University of Leeds, UK)
11:25-11:45	0.34 - Xylitol Nucleation in the Melt: Supercooling Rupture by Stirring - Denis Mangin (Université Lyon, France)
11:45-12:05	0.32 - Crystal Shape and Topography: Prediction and Optimisation with the CrystalGrower Model - Alvin Jenner Walisinghe (Curtin University, Australia)
12:05-12:25	0.33 - Integrating Docking-Based Screening Method for Impurities, within CrystalGrower Computational Workflow to Model and Control Crystal Growth for Advanced Process Design - Susi Cuccurullo (University of Manchester, UK)
12:25-14:00	Lunch Break, Exhibition & Poster Session
Session Chair: Koichi Igarashi, Cai Ma	
14:00-14:30	0.06 - How Does the Fluid Motion Affect the Crystallization? (Invited Lecture) - Woo-Sik Kim (Kyung Hee University, South Korea)
14:30-14:50	0.28 - Digital Design of Intensified Crystallization Systems - Zoltan K. Nagy (Purdue University, USA)
14:50-15:10	0.31 - Numerical Simulation of Hydrodynamic and Particle Suspension Performance in a Novel Stirred Tank - Mingyu Chen (Tianjin University, China)
15:10-15:30	0.27 - Evaluation Models of Solvent Effect on the Dissolution and Crystallization Process of Aripiprazole - Xin Huang (Tianjin University, China)
15:30-15:50	0.29 - Shaping Crystals with Fundamental and Informatics Tools. Using Particle Informatics to Understand Growth Rates - Pietro Sacchi (The Cambridge Crystallographic Data Centre, UK)
15:50-16:15	Coffee Break
Session Chair: Huaiyu Yang, Hiroshi Takiyama	
16:15-16:35	0.30 - Stabilization and Coagulation of Colloidal Suspensions during Crystallization - Xiongtao Ji (Tianjin University, China)
16:35-16:55	0.36 - Growth of Organic Crystal Scintillators for High Energy Neutron Detection - Rajesh Paulraj (Sri Sivasubramaniya Nadar College of Engineering, India)
16:55-17:15	0.37 - 2D Elastic Organic Crystals with Thermomechanical/Acid Responses and Dual-Mode Optical Waveguides - Yang Ye (Tianjin University, China)
17:15-17:35	0.38 - Flexible Organic Crystal with Two-Dimensional Elastic Bending and Recoverable Plastic Twisting for Circularly Polarized Luminescence - Bo Jing (Tianjin University, China)
17:35-17:55	0.35 - The Synergy of Computation and Experiment in Solid-State R&D - Guangxu Sun (XtalPi)

Session Chair: Adrian Flood	
08:40-09:20	0.01 - Novel Processes for Chiral Symmetry Breaking (Plenary Lecture) - Gérard Coquerel (University of Rouen Normandy, France)
09:20-09:50	0.03 - Streamlining Pharmaceutical Molecule CocrySTALLization (Invited Lecture) - Doris Braun (University of Innsbruck, Austria)
09:50-10:10	0.23 - Trimesic Acid as a Building Block for Ternary and Quaternary CocrySTALLs - Lamis Alaa Eldin Refat (University of Galway, Ireland)
10:10-10:35	Coffee Break
Session Chair: Kevin Roberts, Pui Shan Chow	
10:35-10:55	0.39 - Organic Crystals with Response to Multiple Stimuli: Mechanical Bending, Acid-Induced Bending and Heating-Induced Jumping - Wenbo Wu (Tianjin University, China)
10:55-11:15	0.40 - Structure Investigation of A Novel Organocobalt Complex of B12 Model - Jie Liu (University of Warwick, UK)
11:15-11:35	0.17 - Grain and Domain Microstructure in Long Chain N-Alkane and N-Alkanol Wax Crystals - Emily Wynne (University of Leeds, UK)
11:35-11:55	0.22 - Crystal Regeneration Post-Breakage: Effect of Solvent Selection, Multiple Breakage Sites, and Surface Growth Kinetics - Deniz Etit (Imperial College London, UK)
11:55-12:15	0.21 - Polytypism of Pharmaceutical Nanocrystals Investigated with 3D Electron Diffraction - Mauro Gemmi (Istituto Italiano di Tecnologia, Italy)
12:15-14:00	Lunch Break, Exhibition & Poster Session
Session Chair: Gérard Coquerel, Woo-Sik Kim	
14:00-14:30	0.05 - Operation Design of Reactive Crystallization for the Quality Improvement of Crystalline Particles (Invited Lecture) - Hiroshi Takiyama (Tokyo University of Agriculture and Technology, Japan)
14:30-14:50	0.15 - Improvement of Dissolution Rate and Tablet Performance of the Antiepileptic Drug Gabapentin Using a Multicomponent Crystal - Chenyang Zhao (Tianjin University, China)
14:50-15:10	0.16 - Composite Crystals of Antihypertensive Agents Prepared by Simultaneous Crystallization - Jonghwi Lee (Chung-Ang University, South Korea)
15:10-15:30	0.18 - New Insights into the Solubilization of Multicomponent Crystals: A Case Study of Pipemidic Acid - Chuanhua Wu (Tianjin University, China)
15:30-15:50	0.24 - Optimization in Expression and Crystallization of Cry Protein from Bacillus - Thuringiensis Zhichun Lin (Loughborough University, UK)
15:50-16:15	Coffee Break
Session Chair: Ting Wang, Rajesh Paulraj	
16:15-16:35	0.19 - Influence of Solvent Selection on the Crystallisability and Polymorphic Selectivity Associated with the Formation of the "Disappeared" Form I Polymorph of Ritonavir - Kevin Roberts (University of Leeds, UK)
16:35-16:55	0.26 - Polymorphism of Aspirin: Nucleation Control and Separation of Form-I and Form-II Polymorphs through Solution Crystallization Process - Srinivasan Karuppannan (Bharathiar University, India)
16:55-17:15	0.20 - Kinetics of the Mechanically Induced Ibuprofen-Nicotinamide Co-Crystal Formation by In-Situ X-Ray Diffraction - Lucia Casali (BAM, Germany)
17:15-17:35	0.25 - Crystallisation of Molecular Solids via Sublimation - An Uncommon Technique with Tremendous Potential - Ciaran O'Malley (University of Limerick, Ireland)
18:30-21:00	Conference Dinner at Room Chom Talay

Friday 26th, July 2024

Session Chair: Hongxun Hao, Doris Braun	
09:00-09:30	0.07 - Environmentally Friendly Gas Storage with Hydrate Technology (Invited Lecture) - Pramoch Rangsunvigit (Chulalongkorn University, Thailand)
09:30-09:50	0.42 - Preferential Crystallization Assisted by Supercritical CO ₂ - Joséphine de Meester (UCLouvain, Belgium)
09:50-10:10	0.44 - Green Technology for Salt Formation: Slurry Reactive Crystallization Studies for Papaverine HCl and 1:1 Haloperidol-Maleic Acid Salt - Dhanang Edy Pratama (National Central University, Taiwan)
10:10-10:30	0.46 - Preparation of Multifunctional Water Treatment Agents for Crystallization Scale Inhibition, Corrosion Inhibition and Sterilization - Jianxin Chen (Hebei University of Technology, China)
10:30-10:55	Coffee Break
Session Chair: Lek Wantha	
10:55-11:15	0.41 - Shifting Enzyme-Catalyzed Reaction Equilibrium - Camila Caro Garrido (UCLouvain, Belgium)
11:15-11:35	0.45 - Accelerating the Drying Process by Spherical Agglomeration: The Case of Benzoic Acid - Rosyid Shidiq Hidayatulloh (National Central University, Taiwan)
11:35-12:00	Closing Remarks



List of Poster Presentation

- P.01 - Altering the Substrate Preference of a Quorum Quenching Lactonase Using Rational Design
Kitty Sompiyachoke (University of Minnesota, USA)
- P.02 - Effect of Temperature and Time on Crystal Growth and Phase Transition of MIL-101(Cr) for CO₂/CH₄ Separation
Nattaphornpat Dangrit (Suranaree University of Technology, Thailand)
- P.03 - Crystallization-Induced Diastereomeric Transformation of Chiral Primary Amine Using Homogeneous Ir-based Racemization Catalyst
Ryusei Oketani (Osaka University, Japan)
- P.04 - Influence of the Crystallisation Solution Environment on the Structural Pathway from Solute Solvation to the Polymorphic Forms of Tolfenamic Acid
Kevin Roberts (University of Leeds, UK)
- P.05 - Highly Crystalline Poly-3-Hexylthiophene Particles Prepared from Pickering Emulsions Stabilized by Alkylamine Functionalized Graphene Quantum Dots
YunMi Song (Korea University, South Korea)
- P.06 - Surface Lattice Matching Induced by Inorganic-Derived Zero-Dimensional Perovskite for High-Efficiency and Stable All-Inorganic Perovskite Solar Cells
Jin Kyoung Park (Korea University, South Korea)
- P.07 - A Novel Polymorph Search of Pharmaceutical Crystals in Microgravity - Crystallization Phenomena of Indomethacin in Indomethacin-Acemetacin-EtOH/H₂O System
Taiki Fujii (Nihon University, Japan)
- P.08 - Mechanisms of photomechanical response, reversible photochromic and mechanochromic luminescence based on polymorphic-modulated acylhydrazone crystals
Yang Ye (Tianjin University, China)
- P.09 - Molecular Recognition and Assembly of Cocrystal and Its Performance
Na Wan (Tianjin University, China)
- P.10 - Fracture Induced Surface Charges in Piezoelectric Pharmaceutical Crystals
Kaustav Das (Indian Institute of Science Education and Research Kolkata, India)
- P.11 - Relating Surfactant Crystal Properties to Pickering Emulsion Stability
Ruochen Yang (Institute of Sustainability for Chemicals, Energy and Environment, Singapore)
- P.12 - Influence of Water Content on Polymorphic Crystallization of Dihydropyrimidinone
Koichi Igarashi (Osaka Metropolitan University, Japan)
- P.13 - Symmetry Breaking and Chirality: A Journey Through Molecular Crystals
Anmol Andotra (Free University of Brussels (ULB), Belgium)
- P.14 - Influence of Ultrasound on Crystal Nucleation, Morphology and Crystallization of Maltol Polymorphs I and II From Aqueous Solution
Srinivasan Karuppannan (Bharathiar University, India)
- P.15 - Effect of Methanol on the Solubility and Crystallization of Papain
Chonut Xaiyathoumma (Suranaree University of Technology, Thailand)
- P.16 - Effect of Ethanol on the Crystallization of the Polymorphs of DL-Methionine
Lamphoun Inthavideth (Suranaree University of Technology, Thailand)
- P.17 - Growth Rate Measurements with Agglomerate Analysis of Beta-Form L-Glutamic Acid Crystals from Crystallisers Using Machine Learning-Based Image Processing
Cai Ma (University of Leeds, UK)
- P.18 - Optimal Precursor Recovery from Spent Lithium-Ion Batteries Using Population Balanced Equation (PBE) Integrated with Impurity Classifier
Kiho Park (Hanyang University, South Korea)
- P.19 - Mechanism of the Enrichment Process of Enantiomeric Excess in Temperature Cycling-Induced Deracemization
Riku Naito (Osaka University, Japan)
- P.20 - In-situ Measurement of Asymmetric Crystal Growth of α -form L-Glutamic Acid
Chen Jiang (University of Leeds, UK)
- P.21 - From crystal structures to surfaces with Particle Informatics and CSD-Particle
Pietro Sacchi (The Cambridge Crystallographic Data Centre, UK)
- P.22 - Regulation on Performance of Organic Crystals Based on Noncovalent Interactions
Ting Wang (Tianjin University, China)
- P.23 - Photo/Mechanical/Acidic Multi-Stimuli Responses and Information Encryption Design of Acylhydrazone Derivative
Yang Ye (Tianjin University, China)
- P.24 - Mechanistic Study on the Structure-Property Relationship of Flexible Organic Crystals
Ting Wang (Tianjin University, China)
- P.25 - Integrating 2D elasticity and elastoplasticity into a multi-stimuli-responsive crystal through phase transitions
Keke Zhang (Zhengzhou University, China)
- P.26 - Fabrication of 2D ZIF-8 Nanosheets and Their Application as Fillers in Mixed Matrix Membranes with Various Pebax Polymers
Hyejin Kim (Kyunghee University, South Korea)
- P.27 - Advanced Synthesis and Characterization of Mesoporous Transition Metal Oxides Using Spray Pyrolysis and Sol-Gel Method
Jeonghun Han (Kyunghee University, South Korea)
- P.28 - Crystal Engineering in Oligorylene Molecules for Optimized Crystal Packing and Influence on Their Charge Transport Properties
Rahul Meena (Universite libre de Bruxelles, Belgium)
- P.29 - Preparation of adsorbent powder for radioactive cesium by crystallization technique
Hiroaki Minamisawa (Graduated School of Industrial Technology, Nihon University, Japan)
- P.30 - Rapid and Sustainable Production of Nano and Micro medicine crystals via Freeze-Dissolving Technology
Huaiyu Yang (Loughborough University, UK)
- P.31 - Production of submicron API particles by membrane crystallization
Pui Shan Chow (Institute of Sustainability for Chemicals, Energy and Environment, Singapore)
- P.32 - Crystallization of Carbonate by CO₂/O₂/N₂ Fine Bubble Injection into Concentrated Seawater Discharged from Salt Manufacturing Process
Yusei Shiraishi (Nihon University, Japan)
- P.33 - Encapsulation of Papain by Antisolvent Precipitation
Sasitorn Boonkerd (Suranaree University of Technology, Thailand)

