3RD

# INTERNATIONAL CONFERENCE

# ADVANCED MATERIALS AND CHARACTERIZATION (AMC 2024)

**JULY 24-26, 2024**

**Chulalongkorn University**

254 Phayathai Road, Pathumwan,
Bangkok, Thailand 10330

# TECHNICAL PROGRAM

## ORGANIZED BY

SG LAB FORUM

Chulalongkorn University

# 3rd International Conference on Advanced Materials Characterization

## Organizing Committee

**Dr Karthikeyan S**
SG LAB FORUM
Frontier Lab
Singapore

**Prof Prasert R**
Chulalongkorn University
Thailand

**Prof. Chanatip S**
Thammasat University
Thailand

**Prof. Suwadee K**
Thammasat University
Thailand

## Our Sponsors

FRONTIER LAB

ThermoFisher SCIENTIFIC

JEOL Solutions for Innovation

LECO EMPOWERING RESULTS

Bara Scientific Solution of Success

www.worldsiam.com

BRUKER


**Venue: Mahakamut building (Level 3 Auditorium) Dept of Chemical Technology, Faculty of Science, Chulalongkorn University, Bangkok, Thailand**

| **Day 1 - 24 July 2024 (Wednesday)<br>Conference Theme: Waste Plastics and Microplastics Research** | |
|---|---|
| 8.00 AM – 9.00 AM | Registration |
| 9.00 AM – 9.15 AM | Opening Ceremony |
| | **Session Chair: Professor Chanatip Samart, Thammast University** |
| 9.15 – 9.45 AM | Plenary Talk: Role of Pyrolysis Technology in Circular Economy and Carbon Neutrality<br>**Prof. Toshiaki Yoshioka,** Tohoku University, Japan |
| 9.45 – 10.15 AM | Keynote 1: Standardization of microplastic measurement/analyses to establish the Atlas of Ocean Microplastic (AOMI) database.<br>**Prof. Atsuhiko Isobe,** Kyushu University, Japan |
| 10.15 – 10.45 AM | Coffee Break |
| **Session 1** | **Microplastics Analysis: New Developments in Analytical Techniques and QA/QC** |
| | **Session Chairs: Prof Toshiaki Yoshioka, Tohoku University, Japan & Associate Prof Sabiqah Anaur, Universiti of Terengganu Malaysia** |
| 10.45 – 11.05 AM | Keynote 2 Machine Learning – An upcoming scalable technology to analyse microplastics data. **Dr. Benedikt Hufnagl,** Austrian *Delegate for ISO/TC 61/SC 14/WG 4 , Hufnagl Chemometrics GmbH* |
| 11.05 – 11.20 AM | Invited Lecture – Microplastics in the Air: Case study in Bangkok Metropolitan Region<br>**Dr Ekbordin Winijkul,** Asian Institute of Technology, Thailand |
| 11.20 – 11.35 AM | Invited Lecture: Mass based analysis of microplastics by Py-GCMS<br>**Dr. Sathrugnan Karthikeyan,** Frontier Laboratories, Singapore |
| 11.35 – 11.50 AM | Short Oral Presentation – Detection of Microplastics in Agricultural Soil,<br>**Sarala Selambakkannu,** Malaysian Nuclear Agency, Malaysia |
| 11.50 AM – 12.05 PM | Short Oral Presentation – Microplastic Behaviour and Removal Efficiency During Sea Salt Crystallization Processes, **Janga Venkatesh,** IIT Guwahati, India |
| 12.05 – 12.20 PM | Short Oral Presentation - Beyond Beads: The story of plastic microbeads regulations and future policy needs, **Riya Kumbukattu Alex**, CUSAT, Kerala, India |
| 12.20 – 13.30 PM | Lunch |
| **Session 2** | **Environmental Monitoring – Sampling and Sample Preparation** |
| | **Session Chairs: Prof Abhishek Sharma, Manipal University, Jaipur & Dr Janejira Ratthiwan, Thammasat University** |
| 13.30 - 13.50PM | Keynote 3 Waste Plastics Recycling by Pyrolysis **Prof. Dr. Tharapong Vitidsant**, Dept of Chemical Technology, Chulalongkorn University, Thailand |
| 13.50 – 14.10 PM | Keynote 4- Microplastics in Drinking Water, Thailand<br>**Dr Sandhya Babel,** Sirindhorn International Institute of Technology, Thammasat University |


| | |
|---|---|
| 14.10 – 14.25 PM | Invited Lecture: Simultaneous polymer assessment and ecological risk indexes associated with microplastics found in the surface water of tropical rivers<br>**Dr. Sabiqah Anaur,** Universiti of Terengganu Malaysia |
| 14.25 – 14.40 PM | Invited Lecture: Size segregated Microplastics analysis in Airborne Particulate Matter: Sampling and analysis by Py-GCMS<br>**Dr Atsushi Watanabe,** Frontier Laboratories, Japan |
| 14.40 – 14.55 PM | Invited Lecture – Analysing microplastics by FTIR in accredited commercial operations, **Dr Drillet, Guillaume,** EHS Business manager, SGS Singapore |
| 14.55 – 15.10 PM | Invited Lecture – Microplastics and seafood in Thailand<br>**Prof. Suchana Chavanich,** Marine Science, Chulalongkorn University, Thailand |
| 15.05 – 15.20 PM | Invited Lecture: End-to-End Solution for Microplastics Analysis, **Dr Dhaval Patel**, Regional Application Manager, Thermo Fisher Scientific, Singapore |
| 15.30 – 16.30 | **POSTER SESSION**<br>Tea Break |
| **Session 3** | **Waste Plastics Recycling: Challenges and Solutions** |
| | **Prof Sandhya Babel, SIIT, Thammast University Thailand &**<br>**Prof Atsuhiko Isobe, Kyushu University, Japan** |
| 16.30 – 16.45 PM | Invited talk – Synergistic Approach to Sustainable Energy via Co-Pyrolysis using Groundnut Shell and Plastics for Bio-oil Quality Enhancement<br>**Prof. Abhishek Sharma,** Manipal University, Jaipur, India |
| 16.45 – 17.00 PM | Short Oral Presentation – Investigation of catalytic pyrolysis of waste plastics using Tandem Microreactor-GCMS,<br>**Dr Janejira Ratthiwan,** Postdoctoral Researcher, Thammasat University |
| 17.00 – 17.15 PM | Short Oral Presentation – Decentralized Plastic Waste Management in Kerala, India: An Analysis of Community Engagement and Public Perception, **P K Madhuraj,** Cochin University of Science and Technology, Kerala, India |
| 17.15 – 17.30 PM | Short Oral Presentation: Sustainable Utilisation of Plastic Wastes (spi#7) using non-Catalytic and Catalytic fast pyrolysis,<br>**Subhan Pal**, IIT Madras, India |
| 17.30 – 17.45 PM | Short Oral Presentation - Isolation and characterization of microplastics from cosmetics and its effects on Artemia salina and human skin cell line, **Guria Saha,** Vellore Institute of Technology, India |
| 17.45 – 18.00 PM | Short Oral Presentation Effect of Polyethylene Addition on Soil Quality and Growth Responses in Sesbania grandiflora (L.) Pers., **Krishnakumar Pandey,** BHU, Varanasi, India |


| Day 2 – 25 July 2024 (Wednesday)<br>Conference Theme: Advanced Materials and Characterization | |
|---|---|
| | **Session Chair: Prof Suwadee Kongparakul, Thammasat University, Thailand** |
| 9.00 – 9.45 AM | Plenary Talk: Advanced Materials – Greener Nano Materials-Efficient Intensification of nano- materials process through cavitation,<br>**Prof Sivakumar Manickam,** Dept of Petroleum and Chemical Engineering, *Universiti Teknologi Brunei, Brunei Darussalam* |
| 9.45 – 10.15 AM | Keynote Talk 5: Catalytic upgrading of bio-oil derived from fast pyrolysis of biomass wastes- **Prof Guoqing Guan, Hirosaki University, Japan** |
| 10.15 AM – 10.45 AM | Coffee Break |
| **Session 4:** | **Advanced Materials Characterization** |
| **Session Chairs** | **Prof Sivakumar Manickam, Universiti Teknologi Brunei & Dr. Benedikt Hufnagl, Austria** |
| 10.45 -11.05 AM | Invited Talk – Driving Sustainable Change, focuses on waste recycling and circular solutions in laboratory settings<br>**Mr Mark Cris Cano,** Head of Laboratories- S&T, Nestle R&D, Singapore |
| 11.05 – 11.25 AM | Invited talk: Detailed polymer characterization using comprehensive analysis of Pyrolysis GC-TOFMS and MALDI-TOFMS<br>**Dr. Takaya Satoh**, MS Sales Promotion Manager – JEOL Ltd., Japan |
| 11.25 – 11.45 AM | Invited talk – Pyrolysis-GC/MS System incorporated with On-line Micro-UV Irradiation for Rapid Evaluation of Photo, Thermal, and Oxidative Degradation of Polymers: Studies on EPDM and HIPS<br>**Dr Michael Soll**, Frontier Laboratories, Germany |
| 11.45 AM – 12.05 PM | Invited talk: Nano Materials Characterization<br>**Dr. Pongtanawat Khemthong,** National Nanotechnology Center, National Science and Technology Development Agency, THAILAND |
| 12.05 – 12.20 PM | Short Oral Presentation – Preparation, Characterization & Application of Bi4Ti3O12 ceramic, **Prof. Dhanesh Tiwary**, IIT, Varanasi, India |
| 12.20 – 12.35 PM | Short Oral Presentation – The functionalities of LDPE film modified with Nigella Sativa oil for potential use in active food packaging **NOR AZWIN SHUKRI**, Malaysia Nuclear Agency, Malaysia |
| 12.35 PM – 14.00 PM | Lunch |
| **Session 5** | **Advanced Materials-Nano Materials** |
| | **Prof Guoging Guan, Hirosaki University & Dr Michael Soll, Frontier Lab, Germany** |
| 14.00 - 14.20 PM | Invited talk – $Cu_1$-$O_3$ Species in Single-Atom Cu/$ZrO_2$ Catalyst for $CO_2$ Hydrogenation to Methanol, **Prof Tan Li**, State Key Laboratory of Photocatalysis on Energy and Environment, Fuzhou University, China |
| 14.20 - 14.35 PM | Invited Talk: Carbon Nanotube Synthesis Through Activation of Nanosized Bimetallic Ni-Based Catalyst at Low Carbon Monoxide Concentrations<br>**Dr. Wan Nor Roslam Wan Isahak**, Universiti Kebangsaan Malaysia |
| 14.35 – 14.50 PM | Short Oral Presentation – Dielectric and electrical properties of complex perovskite Nanomaterials, **Prof. K. Mandal**, IIT, Varanasi, India |


| | |
|---|---|
| 14.50 – 15.05 PM | Short Oral Presentation – Robust All-Waterborne Superhydrophobic Coating with Photothermal Deicing and Passive Anti-icing Properties, **Liu xudong**, Southeast University, China |
| 15.05 – 16.00 PM | **POSTER SESSION**<br>Tea Break |
| **Session 6** | **Advanced Analytical Techniques-Chromatography and Mass Spectrometry** |
| | **Session Chairs: Prof R Vinu, IIT Madras & Dr Pongtanawat Khemthong, NSTDA** |
| 16.00 – 16.20 PM | Invited Talk – Unveiling the Molecular Underpinnings of the Anti-Angiogenic Activity of Compound EL50 from *Eurycoma longifolia* : A Deep Dive into Endothelial Cell Proteomics **Prof. Mohd Nazri Ismail,** USM, Malaysia |
| 16.20 – 16.35 PM | Invited Talk – Identification of Protein-Coenzyme A Adduct: A Biochemical Approach to LC-MS/MS Sample Preparation **Dr. Yugo Tsuchiya,** SCAS, Singapore |
| 16.35 – 16.50 PM | Invited Talk – Comparative Analysis of Recycled Plastics Using GC/MS and Various Sample Preparation Techniques<br>**Ms Chiew Mei, Application Specialist,** CTC Analytics, Singapore |
| 16.50 – 17.05 PM | Invited Talk – Magic Chemisorbers for Trace VOC Analysis: Flavors and Fragrance<br>**Dr Sathrugnan,** Frontier Lab, Singapore |
| 17.05 – 17.20 PM | Short Oral Presentation: Development of an efficient and cost-effective extraction method for microplastics (MPs) adsorbed organic pollutants and its sorption behaviour in different environmental matrices, Midhun Nair, CIFT ICAR, India |
| 17.20 – 17.35 PM | Short Oral Presentation: Sampling and Analysis of Micro rubber in Road Dust Collected from Federal and State Roads: a study in Selangor, Malaysia, Nor Salmi Abdullah, NAHRIM, Malaysia |
| | - End - |


| Day 3 - 26 July 2024 (Friday)<br>Conference Theme: Advanced Materials and Characterization | |
|---|---|
| | **Session Chair: Prof Kou Ikejima, Kochi University, Japan** |
| 9.00 – 09.30AM | **Keynote Talk 6**: Functional Polymers in circular economy **Prof.Pakorn Opaprakasit,** SIIT, Thailand |
| 9.30 -10.00 AM | **Keynote Talk 7**: Analytical Pyrolysis for understanding polymer degradation and Resource recovery from diverse feedstock **Prof Vinu, IIT Madras, India** |
| 10.00 – 10.15 AM | **Short Oral Presentation**: A Biocompatible, inherent antioxidant silk protein-based hydrogel film from Antheraea mylitta cocoon via non-toxic citric acid – **Professor Shyam Kumar Vootla, Karnatak University, India** |
| 10.15 – 10.30 AM | **Short Oral Presentation:** Mapping Suspended Microplastics in Qatar: Sources, to Potential Health Hazards, **Hashir Puthukkudi Kuningarath**, Qatar University, Qatar |
| 10.30 – 11.00 AM | Tea Break |
| **Session 7** | **Nano Technology and Nano Medicine** |
| | **Session Chair: Dr. Wan Nor Roslam Wan Isahak**, Universiti Kebangsaan Malaysia |
| 11.00 – 11.15 AM | Invited talk – Timing of Silicon Application for Improved Rice Growth Under Limited Water Availability **Dr Hayat Ullah,** Asian Institute of Thailand |
| 11.15 – 11.30 AM | Invited talk – Design and optimization of textile-based electrodes for ECG and EMG measurement **Prof. Elizabeth Rufus,** VIT Vellore, India |
| 11.30 – 11.45 PM | Invited Talk – Recent advances in nanomedicine against microbial infections **Dr Sougata Ghosh,** Kasetsart University, Thailand |
| 11.45 – 12.00 PM | Short Oral – Fabrication of robust and room-temperature curable superhydrophobic composite coatings with breathable and anti-icing performance, **Yuanlong Wu**, Southeast University, China |
| 12.00 – 12.15 | Short Oral Presentation; Synthesis, Characterization, and Antioxidant activity of Chrysanthemum indicum flower-mediated magnesium oxide nanoparticles, **Dr Rajiv Periakaruppan**, PSG College of Arts & Science, India |
| 12.15 – 12.30 PM | Conference Closing & Presentation Awards |
| 12.30 – 14.00 PM | Lunch Break |


## AMC 2024 - POSTER PRESENTATION

| No | Session | Abstract No | Name | Poster Title |
|---|---|---|---|---|
| 1 | MP | AMC-049 | Y. Onozuka | Occurrence, behavior, fate, and health impact of airborne microplastics (AMPs) (23) : Characteristics of AMPs at roadside in the Tokyo metropolitan area, Japan |
| 2 | MP | AMC-058 | Sreeparvathi CK | From water to plates; Investigating microplastic contamination in surface water and commercially important edible fishes off Kadalundi Estuary, Southwest coast of India |
| 3 | MP | AMC-059 | Kou Ikejima | Effects of shape and size on microplastic egestion in a intertidal sesarmid crab, Chiromantes dehaani |
| 4 | MP | AMC-065 | PARK | Relationship between feeding habit and microplastic contamination of fish in estuary |
| 5 | MP | AMC-070 | Zhang Nicole | Identification of microplastics in water and food using pyrolysis GC with high resolution Orbitrap mass spectrometry |
| 6 | MP | AMC-071 | Vallabh S. Prabhudesai | Petrochemical Feedstock Recovery via Thermo-catalytic Depolymerization of Oxygenated Aromatic Plastic Wastes |
| 7 | MP | AMC-057 | Fumikazu Ikemori | Characterization of plastic combustion tracer components in atmospheric aerosols in Japan and abroad |
| 8 | MP | AMC-073 | Michael Soll | Analysis of Bio-Plastic Bags using Evolved Gas Analysis and Py-GCMS |
| 9 | MP | AMC-056 | Jahyeon Kang | Microplastics in groundwater: Current status in Korea and identification of pollution sources |
| 10 | MP | AMC-064 | Nagyeong Kim | Evaluation of Total-Organic-Carbon As Rapid Screening Tool for Microplastic Pollution |
| 11 | AMC | AMC-048 | Yoshiki Tachikawa | Micron-sized Single-Walled Carbon Nanotube Biosensor ~Quantitative detection of near-infrared photoluminescence response by biomolecule addition |
| 12 | AMC | AMC-050 | Dong-Hwang Chen | CoPc-grafted reduced graphene oxide as calcination-free photothermal enhanced single atom catalyst for organic pollutant degradation |
| 13 | AMC | AMC-051 | Hyun Jin Nam | Development and Characterization of Low-Dielectric Polyimide-Based Material with Low-Temperature Curing for High-Frequency Electronic Components |
| 14 | AMC | AMC-054 | Tiantian Li | Comparison of Different Sample Preparation Techniques for Analyzing Volatile and semi-Volatile Organic Compounds in Recycled Plastics Using GC/MS |
| 15 | AMC | AMC-055 | Nuntanut Chaitong | Molecularly Imprinted Polymer Grafted on Paper for Antibiotic Analysis |
| 16 | AMC | AMC-061 | Kauki Naganuma | Separation of niobium using silica gel and its application to niobium analysis |
| 17 | AMC | AMC-062 | Takuma Tateno | Separation of Astatine-211 minority chemical species in aqueous solution by ion pair chromatography |
| 18 | AMC | AMC-069 | Zhang Nicole | An automated approach for the analysis of VOCs in drinking and surface water by using the TriPlus RSH SMART VOC Sample Prep Station |
| 19 | AMC | AMC-072 | Vallabh Sudhir Prabhudesai | Petrochemical Feedstock Recovery via Thermo-catalytic Depolymerization of Oxygenated Aromatic Plastic Wastes |
| 20 | AMC | AMC-042 | T. Satoh | Multifaceted degradation evaluation of PET bottles subjected to outdoor exposure test |
| 21 | AMC | AMC-074 | Chu Watanabe | Development of A New Mill for Solids; Polymer and Inorganic substances |

Bara Scientific
Solution of Success

# World Class Product Support for Science & Technology

**บริษัท พาราไซแอนติฟิค จำกัด** เป็นบริษัทชั้นนำของประเทศ ในการนำเข้าและให้บริการแบบครบวงจร สำหรับเครื่องมือวิทยาศาสตร์ และเครื่องมือทดสอบด้านวิศวกรรม จากผู้ผลิตชั้นนำที่มีชื่อเสียงของโลก โดยเฉพาะอย่างยิ่งบริษัทฯ ได้เป็นตัวแทนจำหน่ายแต่เพียงผู้เดียวในประเทศไทย สำหรับเครื่องมือวิทยาศาสตร์ และเครื่องทดสอบของ **Shimadzu** ซึ่งเป็นบริษัทชั้นนำของประเทศญี่ปุ่น มานานกว่า 28 ปี

เพื่อให้ลูกค้าของบริษัทฯได้รับความพึงพอใจสูงสุด บริษัทฯได้มีการพัฒนาประสิทธิภาพในการให้บริการแก่ลูกค้า โดยได้มีการนำระบบ **คุณภาพมาตรฐาน ISO 9001:2008** มาใช้ในการบริหารงาน และบริษัทฯ ยังสามารถให้ **บริการสอบเทียบเครื่องมือตามมาตรฐาน ISO/IEC 17025 :2005** สำหรับเครื่อง UV-VIS Spectrophotometer และเครื่อง Universal Testing Machine และจะขยายขอบเขตเพื่อให้ ครอบคลุมการสอบเทียบเครื่องมืออื่นๆต่อไป

และการที่ บริษัท พาราไซแอนติฟิค จำกัด เป็นบริษัทใน **กลุ่มบริษัท พาราวินเซอร์ จำกัด** ซึ่งเป็นองค์กรขนาดใหญ่ชั้นนำของประเทศ ทำให้บริษัทฯ มีศักยภาพสูง สามารถให้บริการลูกค้าได้ทุกระดับ ซึ่งรวมถึงการจัดซื้อ ที่เป็นโครงการขนาดใหญ่

**สำหรับลูกค้าของบริษัทฯ ได้ครอบคลุมทั้งกลุ่มลูกค้าราชการและเอกชน เช่น**

- มหาวิทยาลัยและสถาบันการศึกษาต่างๆ
- กรม-กองของภาครัฐบาล
- สถาบันค้นคว้าวิจัยด้านวิทยาศาสตร์
- อุตสาหกรรมอาหารและการเกษตร
- อุตสาหกรรมยา
- อุตสาหกรรมปิโตรเคมี/โพลิเมอร์/เคมี
- อุตสาหกรรมยานยนต์
- อุตสาหกรรมไฟฟ้าและอิเลคทรอนิคส์

SHIMADZU
Excellence in Science

**One Stop Shopping of Shimadzu Human Technology**

**Analytical Instruments**

**Spectrophotometric**
- UV-VIS Spectrophotometer
- Atomic Absorption Spectrophotometer
- Inductively Coupled Plasma Spectrometer
- Inductively Coupled Plasma Mass Spectrometer
- Spectrofluorophotometer
- Fourier Transform Infrared Spectrophotometer
- Infrared Microscope

**Chromatographic**
- High Performance Liquid Chromatograph
- Gas Chromatograph

**Mass Spectrometer**
- LC-MS/MS (Triple Quadrupole)
- LCMS-Q-TOF MS
- LCMS-IT-TOF MS
- LC-MS (Single Quadrupole)
- GC-MS/MS
- GC-MS

**Life Science Research**
- Imaging Mass Microscope
- MALDI TOF/(TOF) Mass Spectrometer
- Microorganism Identification (MALDI TOFMS)
- Microchip Electrophoresis (DNA/RNA Analysis)
- Functional Near-infrared Spectroscopy System for Research

**Physical Properties Analyser**
- Thermal Analyzer
- Particle Size Analyzer
- Total Organic Carbon Analyzer

**Scientific Equipment**

**Elemental Analyzer Group**
- Energy Dispersive X-Ray Fluorescence Spectrometer
- Wavelength Dispersive X-Ray Fluorescence Spectrometer
- Optical Emission Spectrometer

**Surface Analyzer Group**
- X-Ray Diffractometer
- Scanning Probe Microscope
- Nano Search Microscope
- Electron Probe Micro Analyzer
- X-Ray Photoelectron Spectroscopy

**Testing Machine**
- Universal Testing Machines
- Fatigue Tester Machine
- Hardness Tester
- Viscosity Testers
- Special Purpose Tester

**Non-Destructive Testing**
- Microfocus X-ray System
- Microfocus X-ray CT System
- Dimensional X-ray CT System


BARA SCIENTIFIC
Solution of Success


**Bara Scientific Co., Ltd.**
968 U Chu Liang Building Floor7
Rama 4 Road Silom Bangrak Bangkok 10500 Thailand
Tel : 02-6324300 (auto 20 lines) Fax : 02-6375496-7
www.barascientific.com


## JMS-T2000GC AccuTOF™ GC-Alpha

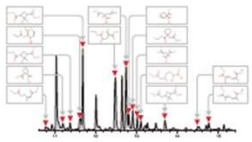
**Gas Chromatograph - Time-of-Flight Mass Spectrometer**

Aiming for high performance while keep it simple, the AccuTOF™ GC-Alpha uses three key technologies to realize automatic structural analysis of unknown compounds: GC-TOFMS technology, Soft Ionization Technology and AI Structural Analysis Technology.

### msFineAnalysis AI Ver.2

**Unknown Compounds Structure Analysis Software**

Automatic structure analysis software for data acquired by electron ionization and soft ionization.
Designed specifically for GC-HRTOFMS:
JMS-T2000GC AccuTOF™GC-Alpha



msFineAnalysis AI Ver.2 proposes structural formulas for unknown compounds automatically.

## JMS-Q1600GC UltraQuad™ SQ-Zeta

**Gas Chromatograph - Quadrupole Mass Spectrometer**

The new JMS-Q1600 UltraQuad™ SQ-Zeta is our 6th generation high-end GC-QMS.
EI/PI (Photoionization) combination ion source is available to cover a wide rante of applications.

### msFineAnalysis iQ

**GC-MS Integrated qualitative analysis software**

The msFineAnalysis iQ is an automatic qualitative analysis software that enables "integrated analysis" by combining the library database (DB) search using EI data and molecular weight confirmation using soft ionization data.

Integrated Analysis Result Window

JEOL

JEOL ASIA (THAI)

JEOL ASIA

JEOL ASIA (THAILAND)

# World Siam Group co., ltd. (WSG)


Frontier Pyrolyzer

Contact: Ms. Jintana Boonnit

Tel: +66 2 860 8902-6, Mobile: +66 81 942 2669

e-mail: wsg@worldsiam.com

Accessories

Thruvision Tactical Awareness Camera


Bruker offers a complete, out-of-the-box FT-IR solution for microplastics analysis.

- Particle size, number and form
- Particle identity and statistics
- Particle recognition down to 5 µm
- Distinction of plastic and non-plastic
- Automated measurement and evaluation
- Analysis of microplastic on any filter

**For more information please contact us**
**www.bruker.com**
**info.bopt.sea@bruker.com**

Innovation with Integrity


Thank you for attending 3rd international conference on advanced material characterization

Please stay in touch with SG Lab Forum through email and by browsing our website

president@sglaconference.com
https://www.sglabconference.com