



Smart Materials

# WCSM-2017

BIT's 3<sup>rd</sup> Annual World Congress of Smart Materials



Step towards a Ubiquitous Smart Future

## BIT's 3<sup>rd</sup> Annual World Congress of Smart Materials-2017

Time: March 16-18, 2017

Place: AVANI Riverside Bangkok Hotel, Thailand

### Highlights of WCSM-2017

- 500+ Oral Presentations Covering the Hot Topics and Cutting-edge Technology in the Whole Field of Smart Materials
- 50+ Exhibitors Showcasing the Emerging New Products and Technologies to an Audience of over 500 People
- 100+ Posters Demonstrating
- Cutting-edge Keynote Addresses by Prominent Leaders from All over the World
- Creating a Harmonious Environment for Project Matchmaking and Promotion
- Opportunities to Visit Thailand's Natural and Cultural Landscapes

Register online at:

<http://www.bitcongress.com/wcsm2017/Register.asp>

Contact Us:

[ada@wcsm-con.com](mailto:ada@wcsm-con.com) or [snowy@wcsm-con.com](mailto:snowy@wcsm-con.com)

Tel: 0086-411-84799609-814

### Hosting Organizations

Burapha University, Thailand



BIT Group Global Ltd.



### Supporting Organization



สมาคมเซรามิกไทย  
The Thai Ceramic Society

The Thai Ceramic Society

# Welcome Message

Dear Friends and Colleagues,

On behalf of the Organizing Committee of BIT's 3<sup>rd</sup> Annual World Congress of Smart Materials-2017 (WCSM-2017), we cordially invite you to participate in this initiative congress.

WCSM-2017 will be held at Thailand during March 16-18, 2017. It is intended to provide a platform for professionals around the world to exchange state-of-the-art research and development and identify research needs and opportunities in this emerging field. And it is the Asian Branch of WCAM (World Congress of Advanced Materials).

Smart materials are one of the most important researching directions in development of High-tech new materials. Their properties can react to reversible changes in their environment by an external condition. Smart materials help in removing the boundaries between structural and functional materials, which may result in significant revolution in materials science development. Based on its significance, WCSM will bring about enormous benefits as well as open up a new and broader pathway for information and experience exchange all over the world.

The 3<sup>rd</sup> WCSM-2017 plans to shoot for 500+ oral presentations in breaking research of Smart Materials Science and Technologies, Properties Characterization of Smart Materials, Piezoelectric Materials, Magnetostrictive Materials & Electrostrictive Materials, Smart Fluid, Hydrogels and Phase Change Materials, Shape-Memory Alloys & Shape-Memory Polymers, Luminescent, Chromogenic Smart Materials, Smart Biomaterials, Smart Nanomaterials, other Smart Materials and Industrial Symposia. More than 500 world-renowned experts, academicians, senior scientists, industry executives and project leaders from 50+ countries will get together to address the topics, issues, best practices and trends necessary to make the right decisions to guide their business strategies, and future science and technology direction.

Based on the huge success of last event of WCSM-2016,

we are strongly confident WCSM-2017 will be a great success and meet our expectations.

Sincerely Yours,

## Executive Chair

Xiaodan Mei, Ph.D.

Executive Chair of WCSM-2017

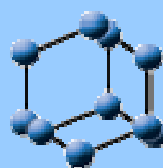
President, BIT Group Global Ltd.

## Honorary Chairman

Dr. Pichai Sonchaeng,

Director, Office of Innovation Development,

Burapha University, Thailand



**BENTHAM  
SCIENCE**

Media  
Partners



Theme: Step towards a Ubiquitous Smart Future

## Smart Materials-2017

Time: March 16-18, 2017

Venue: Bangkok, Thailand

### **Part 1: Opening Ceremony**

### **Part 2: Smart Material Summit**

#### **Module 1: Frontiers in Smart Materials Science & Technology**

Theme 101: Sensing and Information Processing

Theme 102: Actuators and Motors

Theme 103: Breaking Research of Smart Materials Science and Technologies

Theme 104: Next Generation MEMS, NEMS and Array Technologies

Theme 105: 3D Printing Technologies

Theme 106: Smart Material Design, Modeling, Synthesis and Processing

Theme 107: Smart Control Technologies

#### **Module 2: Smart Nanomaterials**

Theme 201: Nanotube and Nanowire

Theme 202: Nanoparticles and Nanopowders

Theme 203: Smart Nano Crystalline Materials

Theme 204: Nano Thin Films

Theme 205: Smart Quantum Dots

Theme 206: Microtech and Nanotechnology

Theme 207: Nanocomposite and Bionanocomposite

Theme 208: Nanomedicine

Theme 209: Nanodevices and NanoSystems

Theme 210: Nanocatalysis

Theme 211: Nano-Spintronics

Theme 212: Development of MAX phases, MXenes and other related 2D material

#### **Module 3: Smart Biomaterials**

Theme 301: Tissue Engineering Biomaterials

Theme 302: Medical Ceramic, Plastics and Polymers

Theme 303: Medical Imaging Materials

Theme 304: Materials for Disease Diagnosis

Theme 305: Biomimetic Materials

Theme 306: Materials for Pharmacy Product and Drug Delivery

Theme 307: Materials for Medical Devices

Theme 308: Bioconjugates

#### **Theme 4: Smart Optical, Electronic Materials**

Theme 401: Dielectric Materials

Theme 402: Electronic components

Theme 403: Optoelectronic Materials

Theme 404: Magnetic Materials

Theme 405: Semiconductors and Superconductors

Theme 406: Piezoelectric and Ferroelectric Materials

Theme 407: Insulating material

Theme 408: Smart Optical Materials

Theme 409: Laser Materials

Theme 410: Printed Electronics

Theme 411: Photonic Crystals

Theme 412: Claytronics

Theme 413: Magnetostrictive Materials

Theme 414: Electrostrictive Materials

Theme 415: Thermoelectric Materials

Theme 416: Nanoelectronics and Molecular Electronics

Theme 417: Nano-Optics, Nano-Photonics and Nano-Optoelectronics

#### **Module 5: Smart Fluid, Hydrogels and Phase Change Materials**

Theme 501: Smart Magnetorheological and Electro-magnetorheological Fluid

Theme 502: Smart Polymer Hydrogels

Theme 503: Smart Low Molecule Organogel

Theme 504: Smart Phase Change Materials

#### **Module 6: Smart Composite Materials**

Theme 601: Smart Metals

Theme 602: Carbon, Graphite, Fullerenes and Graphene Technologies

Theme 603: Smart Glass and Ceramics

Theme 604: Smart Polymers

Theme 605: Smart Rubber, Elastomers and Fiber Materials

Theme 606: Smart Coating, Painting and Adhesives

Theme 607: Shape-Memory Materials and Composites

Theme 608: Smart Catalytic Materials

#### **Module 7: Other Smart Materials**

Theme 701: Smart Optical Fiber

Theme 702: Smart Self-healing and Self-cleaning Materials

Theme 703: Polymorph Materials

Theme 704: Liquid Crystal Polymers

Theme 705: Smart Chromogenic Materials

## **Module 8: Characteristic Analysis of Smart Materials**

Theme 801: Materials and Surface Science

Theme 802: Tribomechanics of Materials

Theme 803: Mechanical and Physical Behavior of Materials

Theme 804: Analytical Technologies and Method of Smart Materials

Theme 805: Magnetic Properties of Smart Materials

Theme 806: Optical Properties of Smart Materials

Theme 807: Thermal Properties Smart Materials

Theme 808: SPM Technologies & Atomic Force Microscope (AFM)

Theme 809: Structural Health Monitoring

## **Module 9: Applications of Smart Materials**

### **Theme 9-1: Smart Materials for Energy and Environment**

Theme 9011: Smart Materials for Energy Harvesting/Conversion/Production/Transistors

Theme 9012: Smart Materials for Energy Storage and Saving

Theme 9013: Materials for Solar Energy and Solar Microgrids

Theme 9014: Smart Materials and Devices for Bioenergy

Theme 9015: Smart Materials for Environment

Theme 9016: Smart Materials for Smart Grid

Theme 9017: Smart Materials for Carbon Capture, Transportation and Storage

### **Theme 9-2: Smart Materials for IT & ICT**

Theme 9021: Smart Display and Imaging Technology

Theme 9022: Smart Light-Responsive Materials for IT and ICT

Theme 9023: Smart Materials for Integrated Circuit Technology

Theme 9024: Smart Materials in Transmission Systems & Wireless Communication

Theme 9025: Smart Materials in Mobile Devices and Cellular Phones

### **Theme 9-3: Other Applications of Smart Materials**

Theme 9031: Smart Materials for Automation and Robotics

Theme 9032: Smart Materials for Automotive, Military, Defense and Aerospace

Theme 9033: Smart Materials for Textile and Chemical Industry

Theme 9034: Smart Materials for Mechanical, Welding and Metallurgical Industry

Theme 9035: Smart Materials for Smart Home

Theme 9036: Smart Materials in Construction and Infrastructure

Theme 9037: Smart Packaging- Smart Tags, Codes and Sensors

## **Module 10: Young Investigator Forum**

# Past Event Report

## Past Event-WCSM-2016

The WCSM-2016 successfully held in Grand Copthorne Waterfront Hotel on March 4-6, 2016. The theme of this conference is "Develop New Path of Smartness". Totally, there were nearly 500 participants from more than 46 countries and areas have attended the WCSM-2015. After the conference many participants expressed their satisfaction with the content of the congress and had fine memories of Singapore. Depending on the warmly support and good suggestions from all of the participants, we are quite confident in organizing WCSM-2017 which would be better and more successful than WCSM-2016. All of us are looking forward to meeting you again in 2017.

### Keynote Forum



### Panel Discussion & Coffee Break

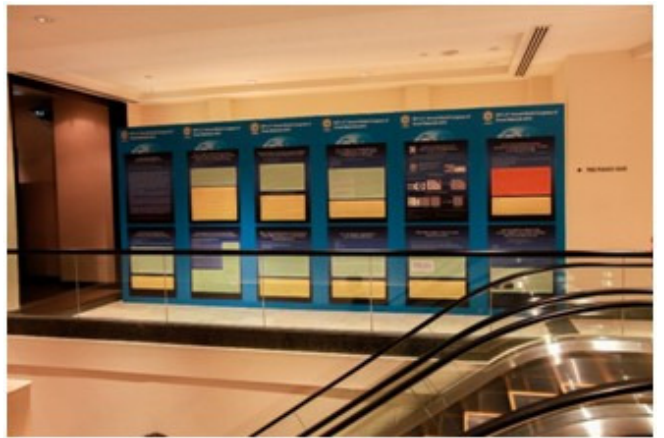


### Welcome Banquet



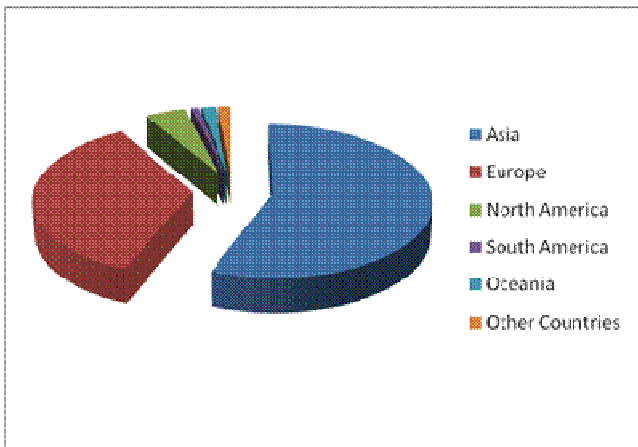


**Poster**

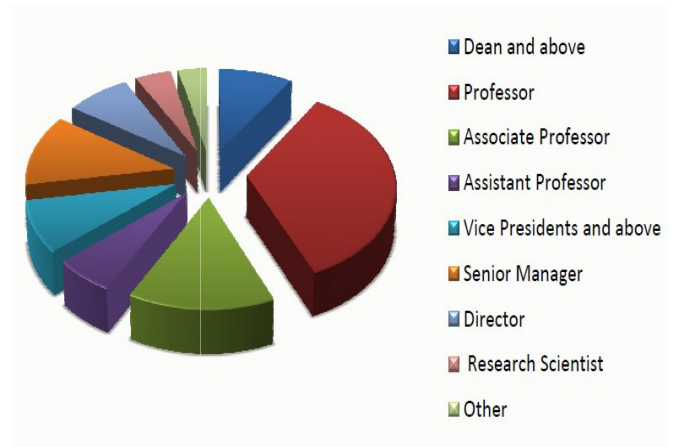


**Analysis of Attendee**

By Region



By Category



# Past Event Report

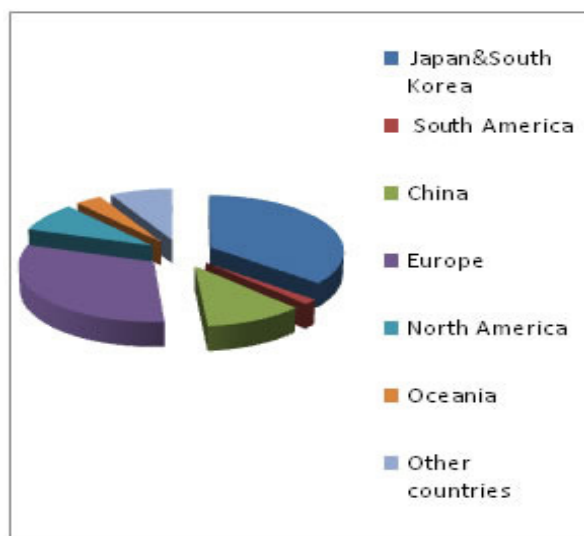
## Past Event-WCSM-2015

BIT's 1st Annual World Congress of Smart Materials-2015 (WCSM-2015), successfully held in Busan Exhibition & Convention Center on March 23-25, 2015. The theme of this conference is "Co-creating Dream of Smartness". Totally, there were nearly 280 participants from more than 24 countries and areas have attended the WCSM-2015. This annual congress comprised 10 paths following the opening ceremony, including "Breaking Research of Smart Materials Science and Technologies"; "Properties Characterization of Smart Materials"; "Piezoelectric Materials"; "Smart Fluid, Hydrogels and Phase Change Materials"; "Shape-Memory Alloys & Shape-Memory Polymers"...etc. Meanwhile, the Young Scientists Forum is very successful as well as the exhibition and poster showcase. After the conference many participants expressed their satisfaction with the content of the congress and had fine memories of Busan.

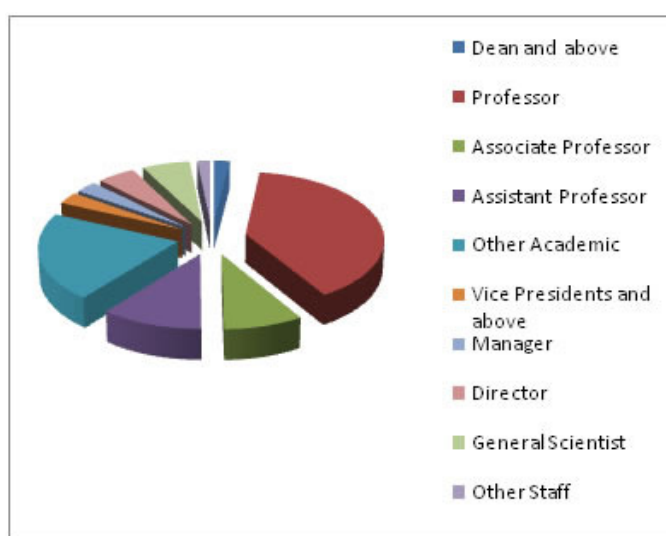


### Analysis of Attendee

By Region



By Title





# Comments on WCSM

Thank you very much for organizing such a fantastic conference in S'pore last week. This conference was more than expected, and I'm sure many others find the same too.

---- K W Chee, UK

I liked the fluent arrangement of the events with adequate supply from both presentation materials and food.

----Istvan Halasz, USA

It was a great pleasure to join the Congress as a speaker. Accept my sincere admiration by level and organization of the Congress.

-----Steve A. J. Jones, Australia

Thank you for inviting me to the conference. I was really honored to be able to present my work in the conference, and I think you all did a really great job too. I also really enjoyed the food and the half day tour!

----- Yana Mulyana, Japan

Thank you very much for having given me the chance to attend the high quality conference. Frankly, your organization is quite good which is above the level of most international conferences which I have attended so far.

----Zong Baoyu, Singapore

Thank you for organizing WCSM and making it a great conference. In my opinion the conference was good and worth to visit

----Bjorn Senf, Germany

Thank you so much for your heartfelt message. I enjoyed the conference. We very much appreciate your careful arrangement for the conference. I would like to participate the next conference in Thailand.

----- George O. Wells, Canada

I really enjoyed the Congress!!! The level is very high and the staff is very attentive and polite. I liked Busan. It is very modern, beautiful and clean!!

-----Lioudmila A. Matlakhova, Brazil

It was an outstanding conference, and from my side, it went very well, from the organization to the scientific programme. Congratulations.

-----J. C. Viana, Portugal

Thank you very much for the certificate and congratulation - it was an excellent conference from the scientific point of view but also very professional organized!

-----Dorota Bociag, Poland

We had a great time in Singapore; we are plan to attend your next conference!

----- Rattaphoom Num Tokongsup, Thailand

## List of Renowned Speakers



**Dr. Alberto Carpinteri,**  
Chair, Structural Mechanics,  
Polytechnic University of Turin,  
Italy



**Dr. Reza Abbaschian,**  
Dean & Distinguished Professor,  
Bourns College of Engineering,  
University of California, USA



**Dr. Sushanta K. Mitra,**  
Associate Vice-President  
Research, York University;  
President of Canadian Society for  
Mechanical Engineering, Canada



**Dr. Masahiro Yamashita,**  
Professor, Tohoku University, Japan;  
Fellow of Royal Society of  
Chemistry



**Dr. M. Jamal Deen,**  
Professor, McMaster University,  
Canada; President, Academy of  
Science, Royal Society of Canada



**Dr. Hongsik Jeong,**  
Vice President, Samsung Electronics;  
Research Professor, Yonsei  
University, South Korea



**Dr. Sommai Pivsa-Art,**  
Vice President, Rajamangala  
University of Technology  
Thanyaburi, Thailand



**Dr. Guenther Benstetter,**  
Professor, Dean, Deggendorf  
Institute of Technology, Germany



**Dr. Siegfried Selberherr,**  
Dean, Electrical Engineering and  
Information Technology,  
Technische Universitaet Wien,  
Austria



**Mr. Ray Gibbs,**  
Chief Executive Officer, Haydale  
Graphene Industries Plc, UK



**Dr. Francis Balestra,**  
Director of Research CNRS,  
IMEP\_LAHC, Minatec,  
Grenoble-Alpes University,  
France



**Dr. Jerzy Lis,**  
Professor/ Vice President,  
AGH-University of Science and  
Technology, Poland



**Dr. Dieter Schwarze,**  
Head, Additive Processes, SLM  
Solutions GmbH, Germany



**Dr. Alain Claverie,**  
Director, CEMES-CNRS, France



**Dr. Elka Tuitou,**  
Professor, The Hebrew University  
of Jerusalem, Israel



**Dr. Kirill Monakhov,**  
Head, Emmy Noether Junior  
Research Group, RWTH Aachen  
University, Germany



**Dr. Mohamed Ichchou,**  
Director and Group leader, Ecole  
Centrale de Lyon – University of  
Lyon, France



**Dr. Norimichi Kojima,**  
Emeritus Professor, The University  
of Tokyo; Fellow, Toyota Physical  
and Chemical Research Institute,  
Japan



**Dr. A.-Moumen Darcherif,**  
General Director, ECAM-EPMI  
Graduate School of Engineering,  
France



**Dr. Peng-Sheng Wei,**  
Xi-Wan Chair Professor, National  
Sun Yat-Sen University, Taiwan



**Dr. Christian Pedersen,**  
Head & Group Leader, Technical  
University of Denmark, Denmark



**Dr. S. I. Nikitenko,**  
Director, Laboratory of  
Sonochemistry in Complex Fluids,  
ICSM, France



**Dr. Manfred Eich,**  
Director, Institute of Optical and  
Electronic Materials, Hamburg  
University of Technology,  
Germany



**Dr. Jerzy Szpunar,**  
Tier I Canada Research Chair,  
University of Saskatchewan, Canada



**Dr. Istvan Toth,**  
Professor, The University of  
Queensland, Australia



**Dr. Kandalam Ramanujachary,**  
Professor, Rowan University, USA

# Conference Receptions and Event

## Poster Abstract

There will be an exhibition of posters at the conference and the abstracts of accepted posters will be published in the conference program. You will be notified if your abstract has been accepted for poster presentation as soon as it has been reviewed by the organizing committee. All accepted posters will be presented during the Poster Viewing Session. Posters will be reviewed for oral presentation 4-6 weeks prior to the conference. Oral presenters will be notified by email or telephone at least 3 weeks before the conference. The selected presenters will be posted on the agenda.

Materials to hang your poster will be available at the poster area. The set-up time is TBA. You will receive your poster number 4-6 weeks prior to the conference.

Your presence is recommended during lunches and coffee breaks for discussion with those who are interested in your research.

## Poster Abstracts Format

Posters will be judged during the conference. You are invited to submit a poster abstract on one of the themes from the conference for presentation in poster format. Posters should be based upon original and ongoing research. Abstracts should be submitted online by December 31, 2016 to [ada@wasm-con.com](mailto:ada@wasm-con.com)



## Grasp your Future @ WCSM-2017

### Welcome Banquet

Welcome Banquet is the most symbolic social event of this year's conference. It is our expectation that all the friends present here get to know more including the aspects of economic, science and technology, education, culture and so on. Thus the dishes with ethnic and traditional characteristics are prepared. And the show with typical traditional culture is presented. The attendees from all over the world could exchange ideas, share experiences with each other, and propose valuable advice to look forward to the future in such a relax, friendly and harmonious environment. We believe that the smart materials industry will present us a flourishing future.



## Post-conference Tour

All participants will have the opportunity to join the post-conference tour in Thailand and bring home with inspiring ideas and beautiful memories of its sightseeing spots. The post-conference tour will introduce participants to Thailand's beautiful landscape and history as well as natural wonders. Our designated travel agency has set up a few tourist routes in Thailand. Please visit our website <http://www.bitcongress.com/wasm2017> for more details.

# Join Us

## Call for Speakers

WCSM-2017 with the theme of “Step towards a Ubiquitous Smart Future” is intended to provide a platform for professionals around the world to exchange state-of-the-art research and development, and identify research needs and opportunities. And it is the Asian Branch of World Congress of Advanced Materials.

Smart materials are one of the most important researching directions in development of High-tech new materials which may result in significant revolution in materials science development. Based on its significance, WCSM will bring enormous benefits as well as a new pathway for information and experience exchange all over the world.

The 3rd WCSM-2017 plans to shoot for 500+ oral presentations and more than 500 world-renowned experts, senior scientists, industry executives and project leaders from 50+ countries will get together. We are strongly confident WCSM-2017 will be a great success and we look forward to your active support and participation.

## Call for Conference Sponsorship

WCSM-2017 is one of the most effective international marketing platforms in the field of advance materials, which offers a wide range of sponsoring categories for branding and highlighting your company in order to achieve the best publicity.

## Exhibition Opportunities

A supporting exhibition will be held in conjunction with the conference enabling companies to exhibit their products and service in front of a professional audience.

## Standard Exhibition Booth include:

- ✓ Carpet
- ✓ Exhibitor name board
- ✓ 2 spot lights per stand
- ✓ 1 table
- ✓ 2 chairs
- ✓ 1 main power socket(230V/1KM MAX)
- ✓ 2 Exhibitor passes(Not available for conference access)
- ✓ Listing on NEF website

## Call for Media Partnership

WCSM-2017 invites accredited media organizations working on scientific news to apply for a complimentary press pass. Press passes are limited and are granted only to working journalists who intend to report the relevant events of the conferences.

To qualify for press credentials, you are required to be affiliated with an internationally, nationally or regionally recognized media outlet, and hold an editorial title and/ or hold a position as an industry analyst.

## Call for Co-organizers

The SAB is tasked with providing advice on the matter of science and technology to the conference, guiding its program and providing overall strategic vision, and focusing on strengthening the interface between science, policy and society in areas relevant to smart materials.

On behalf of organizing committee, we sincerely invite you to join in the Scientific Advisory Board of the 3<sup>rd</sup> Annual World Congress of Smart Materials-2017 as one of the SAB Member.

## For Speech Opportunity and Media Partnership

**Ms. Ada Sun and Ms. Snowy Liang**

BIT Group Global Ltd.

East Wing, 11F, Dalian Ascendas IT Park,

No. 1 Hui Xian Yuan,

Dalian Hi-tech Industrial Zone,

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Email: [ada@wcm-con.com](mailto:ada@wcm-con.com)

[snowy@wcm-con.com](mailto:snowy@wcm-con.com)

## For Exhibitor, Sponsorship and Business Development

**Ms. Amy Guo**

BIT Group Global Ltd.

BIT Group Global

---Your Think Tank

Tel: 0086-411-84799609-829

Fax: 0086-411-84799629

Email: [amy@bitlifesciences.com](mailto:amy@bitlifesciences.com)