20th Science Council of Asia Conference

The Age of New Materials: Innovation for Sustainable Society

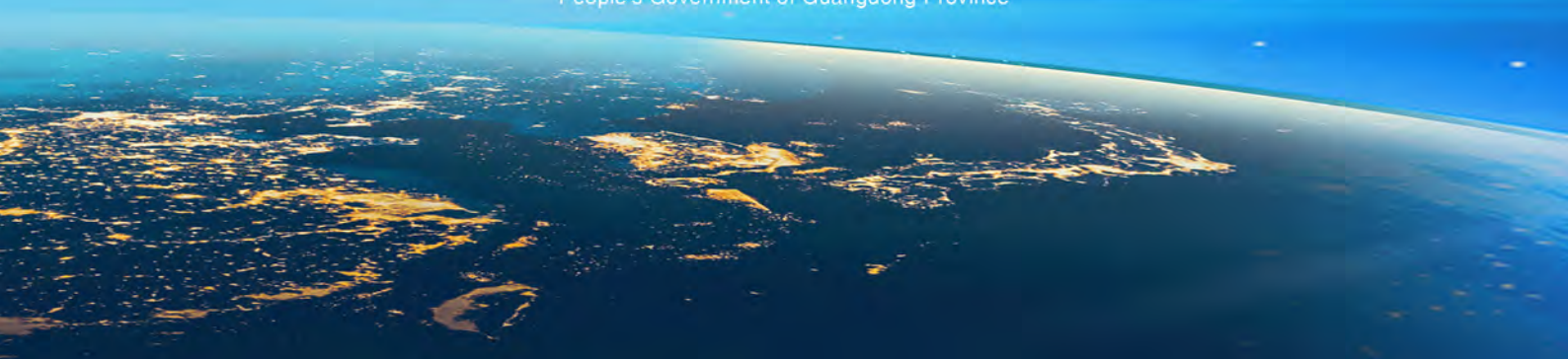
May 13-15, 2021
Guangzhou, Guangdong, China

PROGRAM OF ACTIVITIES

Organized by
Science Council of Asia (SCA)
China Association for Science and Technology (CAST)
Shanghai Institute of Microsystem and Information Technology (SIMIT) CAS
Department of Science and Technology of Guangdong Province
Guangdong Provincial Association for Science and Technology
The People's Government of Guangzhou Municipality

Co-Organized by
Advanced Materials Alliance of CAST Member Societies (AMAC)

Supported by
Chinese Academy of Sciences (CAS)
People's Government of Guangdong Province



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General Information

"Transforming our world: the 2030 Agenda for Sustainable Development" was unanimously adopted at the UN General Assembly in 2015. Under the fundamental principle of no one being left behind for the 7 billion people living in the world, this Agenda has set forth 17 Sustainable Development Goals (SDGs) and 169 targets to be achieved in the next 15 years from 2016.

As one of the three pillars in modern civilization, material science is considered not merely as a singular scientific discipline, but a broad knowledge category with strategic significance. Human activities will inevitably affect the extraction, processing, design, engineering, innovation, selection and application of materials in myriad ways, and these activities will also have enormous impacts on the environment, economy, human health, and quality of life.

Critical development in innovative materials has become the foundation and the impetus for new technological revolution, which will potentially lead to much enhanced efficiency, sustainability, and significant environmental improvements. The 20th Science Council of Asia Conference will focus on a series of key issues, such as how emerging materials and processes can be developed and implemented beneficially for advancing sustainable development, while at the same time to gain new understandings of our engagement and inter-dependence with the material world.

The Science Council of Asia (SCA) is an international scientific organization founded in 2000 by Asian science academies and other national scientific organizations. SCA aims to provide scientists in all fields, including cultural and social as well as natural sciences and technology, with a collaborative platform for promoting scientific exchange and cooperation in Asia, and to develop and promote a holistic vision focusing on sustainable development and improvement in quality of life. SCA is now comprised of 32 academic organizations in Asia, and SCA Conference has been held annually since 2001.

The China Association for Science and Technology (CAST) is the largest non-governmental organization of scientific and technological professionals in China, serving as a bridge that links the domestic and international science and technology communities. As a founding institute of SCA, CAST has been a member of SCA for more than 20 years and made significant contributions to the prosperity and development of science and technology, and to the overall economic and social development.

CHAIR

WANG Xi

President of SCA,
Vice President of CAST,
Deputy Governor of Guangdong Province,
Academician of CAS

CO-CHAIRS

WANG Weihua

Director of Guangdong
Songshan Lake Materials Laboratory,
Academician of CAS

XIE Xiaoming

Deputy Director of SIMIT CAS,
Director of State Key Laboratory of
Functional Materials for Informatics

Message

It is my great honor to attend the 20th SCA Conference, with the theme focusing on “The Age of New Materials: Innovation for Sustainable Society”. Please allow me to extend my warmest welcome to all participating guests.

The 20th SCA Conference will take a close look at the latest development of new material science, which is of great significance to any country’s economic development, well-being of its citizens and national security. New materials will also play a leading role in achieving the carbon neutral and carbon peak targets, and it is evitable for all countries to adopt a green development path for their new material industry.

The world has been badly affected by the lingering COVID-19 pandemic, and many adverse influences are yet to be discovered in the foreseeable future. It is our scientists’ morale obligations to create new opportunities and make the world a better place through scientific innovations. More importantly we scientists must work collaboratively to create a working scientific cooperation mechanism. Here are some of the feasible solutions.

Firstly, we need to create a new role model of innovation cooperation in Asia. Alliance of International Science Organizations (ANSO) is a reprehensive example. We need to strengthen cooperation among Asian countries, integrate high-end science resources and play an exemplary role of scientific and technological cooperation in the world.

Secondly, we need to create a new platform to facilitate innovation cooperation in Asia. We hope that international science organizations will work cooperatively to improve the global governance system.

Thirdly, we need to create a new think tank to facilitate innovation cooperation in Asia. ANSO will launch “Belt and Road” innovation development think tank programs and relevant themed forums in the near future.

Fourthly, we need to create a pro-innovation friend circle in Asia. ANSO will join hand with SCA in pooling together the strength of global innovation talents, especially young scholars, so as to sustain the innovation development of Asia.

Guangdong-Hong Kong-Macao Greater Bay Area (GBA) is an important innovation carrier for the Belt and Road Initiative. In December 6 this year, the first edition of GBA Science Forum, which is organized by ANSO, will be held right here, and I hope that you will actively participate in the forum as well.

The global trends of peace, cooperation, openness, integration, and innovation is unstoppable. I sincerely hope that all participating guests will take this opportunity to share their valuable insights and contribute to the sustainable development of mankind. I wish the 20th SCA Conference a complete success.

BAI Chunli
Former President, Chinese Academy of Sciences
President, Alliance of International Science Organizations

Message

On the occasion of the opening of the 20th SCA Conference in Guangzhou, at the personal request of Academician Huai Jinpeng, Executive Vice President and Chief Executive Secretary of the CAST, I would like to extend our warmest welcome to all the participating delegates, guests, experts, and friends.

Over the past 20 years since its establishment, SCA has contributed Asian wisdom to the sustainable development of the world by responding to common challenges faced by mankind, such as eradicating poverty, reducing the digital divide, and tackling climate change. SCA has indeed played an important role in promoting scientific cooperation, technological progress and sustainable development in Asia and beyond.

As the largest organization for science and technology in China, CAST is committed to academic exchanges, scientific and technological innovation, and international cooperation. As one of the member of the SCA, CAST actively takes part in SCA's events, such as co-hosting this conference.

Countries are now increasingly intertwined, and it is pressing for these countries to have a well-functioning global governance system and find ways to facilitate scientific and technological innovation. Faced with both opportunities and challenges, Asian countries are shouldering greater responsibility in promoting scientific progress and innovative growth. Here, I would like to put forward several suggestions.

Firstly, we shall leverage the strength of Asian scientific community to help improve the global governance system. Based on the UN 2030 Sustainable Development Goals, Asia should actively expand cooperation with countries around the world, promote scientific governance at multilateral and regional levels, and make concerted efforts to solve global scientific problems.

Secondly, we shall build an Asian scientific collaboration mechanism to promote scientific and technological innovation and regional development. Efforts should be made to help the Asian scientific community to explore new models of cooperation in emerging and cutting-edge technologies, enhance in-depth cooperation among scientists of Asian countries, and help improve the overall scientific researches in Asia.

Thirdly, we shall promote the development of open science and the coexistence of multi-civilizations. We should defend the independence of science and enhance the transparency and accountability when carrying out science and technology related activities.

I believe that these joint efforts will help enhance mutual trust and cooperation, strengthen interdisciplinary cooperation, and promote the sharing of innovation resources. By doing so, we can truly foster "innovation for a sustainable society" and achieve the lasting prosperity and development of Asia!

Finally, I wish this conference a complete success and all of you good health.

SONG Jun
Executive Secretary
China Association for Science and Technology

Message

On behalf of the Science Council of Asia (SCA), I am delighted to welcome you to the 20th SCA Conference, a grand gathering taking place in the historic and cultural city of Guangzhou, China. I would like to express my heartfelt gratitude to SCA Secretariat, the China Association for Science and Technology (CAST), and other member organizations for their cooperation and contribution, and my deep appreciations also go to those hardworking individuals who have put in considerable efforts in making this conference a success.

The theme of the 20th SCA Conference is " The Age of New Materials: Innovation for Sustainable Society". SCA has long been aiming at providing a platform of collaboration for scientists in all fields in Asia. Since the adoption of “Sustainable Development Goals (SDGs)” by all member states of United Nations in 2015, SCA has been carrying out many scientific exchange activities that advocate the concept of sustainability and highlight the leading role of sciences. Innovations in building an inclusive and sustainable society are badly needed in the post-COVID 19 era.

Material science has been shaping the development of civilizations since the dawn of mankind. It is regarded as such an important aspect that the main prehistoric phases are named after the predominant material used, for examples, Stone Age, Bronze Age, Iron Age and so on. In the 21st century, innovations in materials, such as silicon and its applications, have changed the society profoundly and rapidly.

The 20th Science Council of Asia Conference is exactly such an occasion to have meaningful dialogues on material innovations, with the topics covering: How will the advancement of materials science facilitate sustainable development? Why must the boundaries between human and natural economies be re-conceptualized? And how can new materials be invented, implemented and used beneficially?

I am delighted that a great number of submissions and registrations have been received for the 3-day event. It is the first time that the conference is conducted in a hybrid mode. Apart from 300 guests personally attending the conference in Guangzhou, more than 150 experts will share their illuminating insights and expertise in the form of Webinar. This makes the conference an excellent opportunity to engage in constructive dialogues, exchange stimulating ideas and grow a solid networking base for future collaboration.

I hope that SCA Conference will continue to put forward innovative ideas, which may lead to a revolution in natural and social sciences, a revolution that is being unfolded before us today and will drive Asia a better region in the future!

WANG Xi
President, Science Council of Asia
Vice President, China Association for Science and Technology

Message

First of all, I would like to express my heartfelt sympathy and respect to people who are enduring and combating with the pandemic COVID-19 all over the world, and we definitely help and support their activities with the alliance of academies in Asia. Due to the pandemic disasters, the Science Council of Asia (SCA) conference had to be put off and the conference site had to be moved. A hybrid type conference of in-person and virtual attending is also challenging, followed by many new trials conducted. This conference will be an incomparable event in the SCA history.

With a great endeavor of the staff members of China Association for Science and Technology (CAST) and all member academies of SCA, I am pleased to announce that the 20th SCA Conference is held in Guangzhou, Guangdong, China. I also would like to express again my deep appreciation to Member Organizations and SCA Secretariat for their cooperation and contribution in organizing this conference and all the people who support it.

The theme of the 20th SCA Conference is “The Age of New Materials: Innovation for Sustainable Society”. As you might already know, the purpose of SCA established in 2000 is “ to facilitate scientific cooperation in Asia towards the progress in science and sustainable development of the region”. With this purpose, SCA has contributed to society through the collaboration across the academies in the region. On such circumstances, “Transforming our world: the 2030 Agenda for Sustainable Development (SDGs)” has been launched with a key principle that no one will be left behind, at the UN General Assembly in 2015. The SCA is expected to play a great role for promoting the SDGs projects and to open the new era of Asia.

The 20th SCA Conference is held for 3 days and more than a hundred presentations (oral and poster) are scheduled. I am delighted to know that we have received many applications exceeding our expectation. It indicates a high level of interest in this Conference’s theme, “New Materials: Innovation for Sustainable Society”. In the Conference, there are six (6) sub-themes that are discussed in their respective parallel sessions. The main theme and sub-themes of the Conference have been carefully selected in order to inspire scholars and researchers in Asia to undertake interdisciplinary researches in partnership to contribute to the realization of the 17 SDGs.

This Conference is an advantageous opportunity to build a hot network of scholars in and outside the country. I am sure that there would be abundant outstanding discussions at this Conference.

SHIBUSAWA Sakae
Secretary General / Treasurer
Science Council of Asia

Main Topics

Keynotes

- The Impact of COVID-19 on Society
- Education in New Century for SDGs
- Materials Innovation for Carbon Neutrality
- Circular Economy and Eco-materials
- Atom Scale Manufacturing and Nanomaterials
- Degradable Plastics for Sustainability
- Topological Materials for Quantum Computation
- Materials for BioTech-InfoTech
- Sustainable Development in Aging Society

Sessions

- Sustainability, Social Diversity and Gender Equality
- Green and Intelligent Materials
- Functional Materials for Informatics
- Smart Transformation in Agriculture and Local Community
- New Frontiers for Materials Design
- Advanced Energy Materials

Sustainable Development Goals (SDGs)

Program at a Glance

Day 1

Time / Venue	Main Venue	Room A	Room B	Room C	Other
9:30 - 9:50	Opening Ceremony				
	Welcome Speech Opening Remarks Congratulatory Address				
9:50 - 10:20	Group Photo				
	Group Photo				
10:20 - 12:00	Keynote Speeches				
	Keynote Speeches				
12:00 - 13:00	Lunch Buffet				Café Flora
13:00 - 16:30	Parallel Sessions				
		Session 1 Sustainability, Social Diversity and Gender Equality	Session 2 Green and Intelligent Materials	Session 3 Functional Materials for Informatics	
16:30 - 18:00	Poster Session				Room A / B / C
16:30 - 18:00	SCA Management Board Meeting (SCA Management Board Members only)				Room D
18:00 - 20:00	Reception				Grand Ballroom

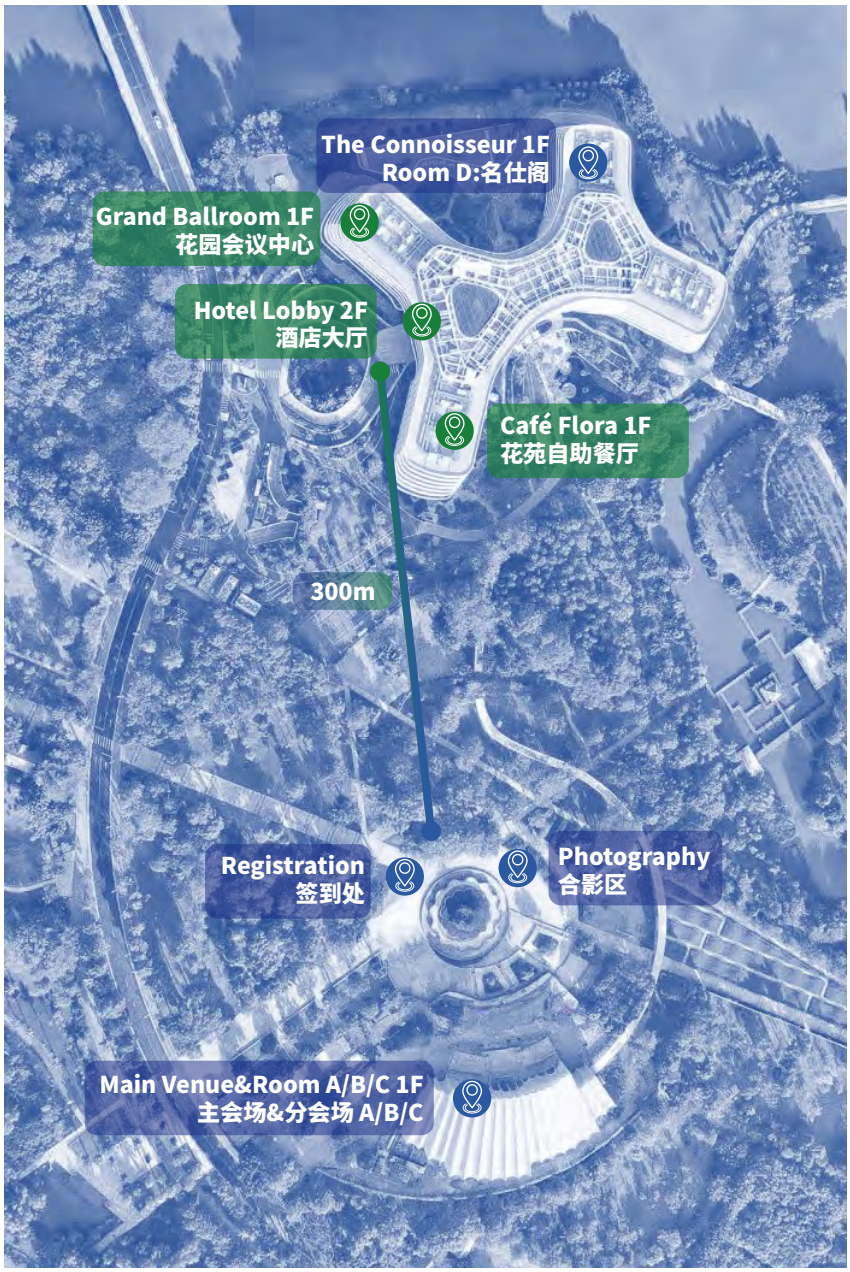
Day 2

9:30 - 11:35	Keynote Speeches				
	Keynote Speeches				
12:00 - 13:00	Lunch Buffet				Café Flora
13:00 - 16:30	Parallel Sessions				
		Session 4 Smart Transformation in Agriculture and Local Community	Session 5 New Frontiers for Materials Design	Session 6 Advanced Energy Materials	
16:30 - 17:30	Poster Session				Room A / B / C
16:30 - 17:30	SCA General Assembly (SCA Member Organizations only)				Room D
17:30 - 18:30	Closing Ceremony				
	Declaration of SCA Statement Greeting from President-Elect Introduction to ICSSR				
19:00 - 20:30	Banquet				Café Flora

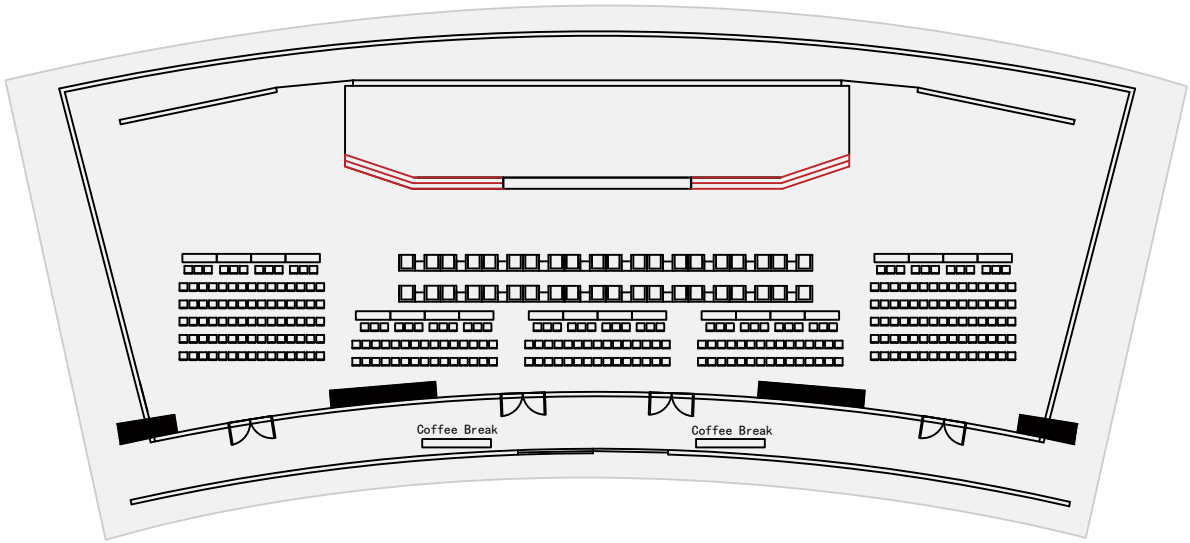
Day 3

8:30 - 12:20	Scientific and Culture Tour				
12:20 - 13:30	Lunch Buffet				Café Flora

Floor Map

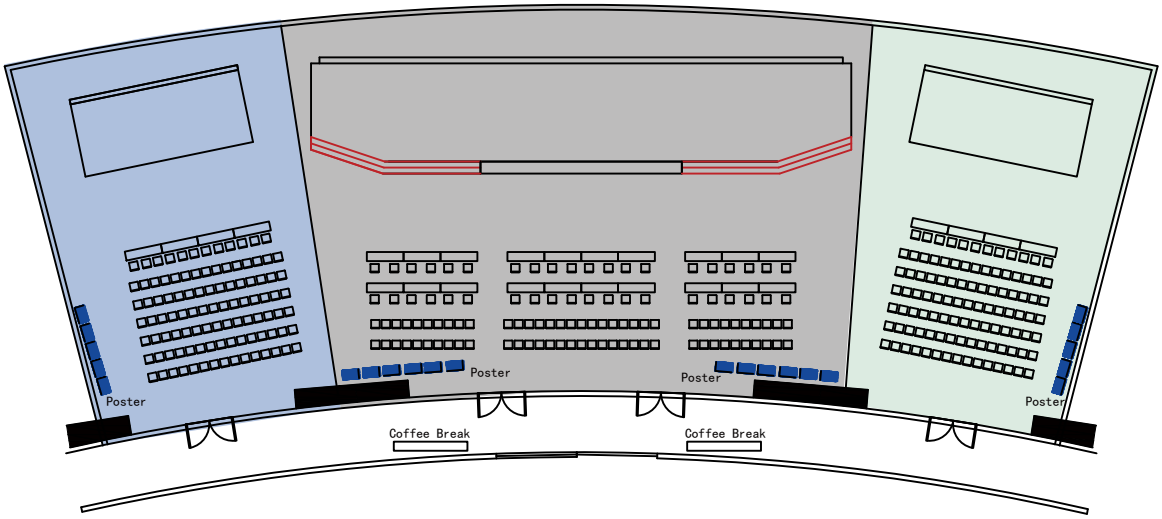

The Connoisseur 1F
Room D:名仕阁
Grand Ballroom 1F
花园会议中心
Hotel Lobby 2F
酒店大厅
Café Flora 1F
花苑自助餐厅
300m
Registration
签到处
Photography
合影区
Main Venue&Room A/B/C 1F
主会场&分会场 A/B/C

Main Venue 1F



Main Venue

Room A/B/C 1F



Room C Room A Room B

Agenda

Day 1

Thursday, 13th May

08:00-09:30	Registration	Main Venue
09:30-09:50	Opening Ceremony	Main Venue

Chair: WANG Xi

President of SCA

Vice President of CAST, Deputy Governor of Guangdong Province, Academician of CAS

Welcome Speech

WANG Xi

President of SCA

Vice President of CAST, Deputy Governor of Guangdong Province, Academician of CAS

Opening Remarks

BAI Chunli

Former President of CAS, President of ANSO, Academician of CAS

SONG Jun

Executive Secretary of CAST

Congratulatory Address

MA Xingrui

Deputy Secretary of Guangdong Provincial Party Committee, Governor of the People's Government of Guangdong Province

09:50-10:20	Group Photo

10:20-12:00	Keynote Speeches	Main Venue

Chair: Prof. XIE Xiaoming

Deputy Director of SIMIT CAS, Director of State Key Laboratory of Functional Materials for Informatics, China

10:20-10:45 **The Impact of COVID-19 on Society**

Prof. ZHONG Nanshan

Director of National Clinical Research Center for Respiratory Disease, Academician of Chinese Academy of Engineering, China

10:45-11:10 **New Progress in Quantum Anomalous Hall Effect**

Prof. XUE Qikun

President of Southern University of Science and Technology, Academician of CAS, China

11:10-11:35 **New Materials as Solution for Carbon Neutrality**

Dr. Gavin TOWLER

Vice President and Chief Technology Officer at Honeywell Performance Materials and Technologies, Member of the United States National Academy of Engineering, United States

11:35-12:00 **Educating Next Generation of Leaders for Sustainable Society**

Prof. LU Jian

Chair Professor of City University of Hong Kong, President of HK-MRS, Fellow of National Academy of Technologies of France, Hong Kong SAR, China

12:00-13:00 **Lunch Buffet** **Café Flora**

13:00-16:30 **Parallel Sessions**

Session 1: Sustainability, Social Diversity and Gender Equality **Room A**

Co-Chair: Dr. Marieta Bañez SUMAGAYSAY

Executive Vice Chairman of National Research Council of the Philippines, Philippines

Co-Chair: Prof. WANG Mou

Vice Director and Secretary-General of Research Centre for Sustainable Development, Chinese Academy of Social Sciences (CASS), China

Co-Chair: Prof. CHEN Ying

Vice Director of Research Centre for Sustainable Development, CASS, China

13:00-13:20 **Promoting a Gender-Responsive Work from Home Scheme in the Public Sector (invited)**

Dr. Marieta Bañez SUMAGAYSAY

Executive Director of National Research Council of the Philippines, Philippines

13:20:13:40 **Analysis of China's Position on Implementing WPS Agenda (invited)**

Prof. LI Yingtao

Professor of Beijing Foreign Studies University, China

13:40-13:55 **The Impact of Gender on Top Scientists' Research Outputs and Process**

Prof. TANG Chaoying

Professor of University of Chinese Academy of Sciences, China

13:55-14:10 **Gender Differences on New Causes of Job-Related Stress by University Teachers Amid the Global COVID-19 Pandemic**

Dr. Yadana SOEMOE

Assistant Lecturer of Co-Operative University, Sagaing, Myanmar

14:10-14:25 **Women Empowerment: Evidence from Myanmar Employed Women and Housewives**

Dr. Wint Khin Sandar CHIT

Assistant Lecturer of Monywa University, Myanmar

14:25-14:40 **Women's Empowerment in Indonesian Agriculture: Does Productivity Matter**

Dr. Umi K. YAUMIDIN

Researcher of Economic Research Centre, Indonesian Institute of Sciences, Indonesia

14:40-14:55 **Impact of Education and Employment on Women Empowerment**

Prof. MARY

Associate Professor of Yangon University of Economics, Myanmar

14:55-15:15 **The Gap between Urban and Rural Development Levels Narrowed in China (invited)**

Prof. WANG Mou

Professor of Institute for Ecological Civilization, CASS, China

15:15-15:35 **Sustainable Development of Ferrous Metal Process Manufacturing (invited)**

Mr. XIAO Xuewen

Chairman of CISDI Group Co., Ltd, China

15:35-15:55 **The SDGs Progress Assessment of Chinese Cities (invited)**

Mr. WANG Dong

Director for SDG Localisation Programme, UNDP China, China

15:55-16:15 **Challenges and Lessons Learnt in Climate and Environmental Policies (invited)**

Dr. LIU Zhe

Associate Professor of Research Center for Sustainable Development, CASS, China

16:15-16:35 **Value Estimation of Ecosystem Services and Practice of Value Transfer in China (invited)**

Dr. LIU Junyan

Research Fellow of Research Center for Sustainable Development, CASS, China

Session 2: Green and Intelligent Materials Room B

Co-Chair: Prof. Jin-Ho CHOY

Professor of Dankook University, Academician of World Academy of Ceramics, Academician of National Academy of Science in Korea, Republic of Korea

Co-Chair: Prof. ZHAO Dongyuan

Director of Advanced Materials Laboratory at Fudan University, Academician of CAS, China

13:00-13:25 **2D Inorganic Nanovector for Drug Delivery (invited)**

Prof. Jin-Ho CHOY

Professor of Dankook University, Academician of World Academy of Ceramics, Academician of National Academy of Science in Korea, Republic of Korea

13:25-13:50 **Slide-Ring Materials with Rotaxane Using Cyclodextrins (invited)**

Prof. ITO Kohzo

Professor of The University of Tokyo, Japan

13:50-14:15 **Biomimetic Engineered Polymer Biomaterials for Human-Friendly Medical Devices (invited)**

Prof. ISHIHARA Kazuhiko

Professor of The University of Tokyo, Japan

14:15-14:40 **Photodeformable Liquid Crystal Polymers and Bioinspired Soft Actuators (invited)**

Prof. YU Yanlei

Professor of Fudan Univerisity, China

14:40-15:05 **Intelligentization of Micro/Nanorobots (invited)**

Prof. GUAN Jianguo

Professor of Wuhan University of Technology, China

15:05-15:30 **Experimentally Measurable Surface D Charge as a Descriptor for Catalytic Activity (invited)**

Prof. WAN Ying

Professor of Shanghai Normal University, China

15:30-15:45 **New Nanohybrid Oral Formulation, Niclosamide-Dehydrated Talcite, as a Covid-19 Game-Changer Drug**

Prof. Sanoj REJINOLD

Professor of Dankook University, Republic of Korea

15:45-16:00 **Smart Materials and Their Architectures for Micro and Nanorobotics**

Prof. CUI Jizhai

Professor of Fudan University, China

16:00-16:15 **Single-Crystalline Silicon Membranes for Fexible/Transient Electronics**

Prof. GUO Qinglei

Professor of Shandong University, China

16:15-16:30 **Two-Dimensional Field-Effect Transistor Sensors**

Prof. WEI Dacheng

Professor of Fudan University, China

Session 3: Functional Materials for Informatics — Room C

Co-Chair: Prof. Than Zaw OO

Pro-Rector of the University of Yangon, Myanmar

Co-Chair: Prof. XIE Xiaoming

Deputy Director of SIMIT CAS, Director of State Key Laboratory of Functional Materials for Informatics, China

13:00-13:25 **New Materials and Techniques for Advanced Electronic and Photonic Devices (invited)**

Prof. Henry RADAMSON

Professor of Guangdong Greater Bay Area Institute of Integrated Circuit and System, China
Institute of Microelectronics, CAS, China

13:25-13:50 **High-Performance Thermally Conductive Composites for Electronic Packaging (invited)**

Prof. XU Jianbin
Professor of Shenzhen Institute of Advanced Technology, CAS, China
The Chinese University of Hong Kong, Hong Kong SAR, China

13:50-14:10 **Possibility of Ceramic Energy Storage Capacitor——A Game Changer for Carbon Neutral Society (invited)**

Prof. TSURUMI Takaaki
Professor of Tokyo Institute of Technology, Japan

14:10-14:30 **SOI Substrate and Its Applications for RF and 5G (invited)**

Dr. Jeffrey WANG
CEO of Shanghai Simgui Technology Co. Ltd., China

14:30-14:50 **Defect Passivation for Efficient and Stable Perovskite Solar Cells (invited)**

Prof. Aung Ko Ko KYAW
Professor of Southern University of Science and Technology, China

14:50-15:05 **Tunning Topological Properties for Quantum Computing**

Prof. JIA Jinfeng
Professor of Shanghai Jiao Tong University, China

15:05-15:20 **Modeling Based Development and Challenges of Key Material Growth Equipment**

Prof. LIU Sheng
Professor of Wuhan University, China
Huazhong University of Science and Technology, China

15:20-15:40 **New Thermoelectric Materials for Autonomous Sensors (invited)**

Prof. TERASAKI Ichiro
Professor of Nagoya University, Japan

15:40-16:00 **Liquid Metal Composites with Carbon and F-Diamane (invited)**

Prof. Rodney S. RUOFF
Professor of Institute for Basic Science (IBS), Republic of Korea
Ulsan National Institute of Science and Technology (UNIST), Republic of Korea

16:00-16:15 **Resistive Switching Device for Memory and Computation**

Prof. LIU Qi
Professor of Fudan University, China

16:15-16:30 **Monolithic Solution-Processed Quantum Dot Upconversion Photodetectors**

Prof. NING Zhijun
Associate Professor of ShanghaiTech University, China

16:30-16:45	**Phase Change Materials and Phase Change Mechanism** **Prof. SONG Zhitang** Professor of SIMIT CAS, China	
16:30-18:00	**Poster Session**	**Room A / B / C**
16:30-18:00	**SCA Management Board Meeting** **SCA Management Board Members only**	**Room D**
18:00-20:00	**Reception**	**Grand Ballroom**

Day 2

Friday, 14th May

09:30-11:35	**Keynote Speeches**	**Main Venue**
	Chair: **Prof. WANG Weihua** Director of Guangdong Songshan Lake Materials Laboratory, Academician of CAS, China	
09:30-9:55	**Quantum Devices Designed Atom-by-Atom** **Prof. WANG Enge** Chair of Governing Board of Guangdong Songshan Lake Materials Laboratory, Academician of CAS, China	
09:55-10:20	**Bio-Based and Biodegradable Plastics for A Sustainable Future** **Prof. K Sudesh KUMAR** Professor of Universiti Sains Malaysia, Malaysia	
10:20-10:45	**10 Technologies for Decoupling Economic Growth and the Use of Our Natural Resource** **Prof. Victoire de MARGERIE** Vice Chair of World Materials Forum, France	
10:45-11:10	**Biomaterials for Endogenous Regeneration: Opportunities and Challenges in Tissue Engineering** **Prof. LIU Changsheng** President of Shanghai University, Academician of CAS, China	
11:10-11:35	**Social Inclusion to Achieve the Sustainable Society, Focusing on the Super-Aged Society, Japan** **Prof. SHIRAHASE Sawako** Professor of the University of Tokyo, Director of UTokyo Center for Contemporary Japanese Studies	

12:00-13:00	**Lunch Buffet**	**Café Flora**
13:00-16:30	**Parallel Sessions**	
	Session 4: Smart Transformation in Agriculture and Local Community	**Room A**

Co-Chair: Prof. SHIBUSAWA Sakae

Secretary General / Treasurer of SCA, Professor Emeritus of Tokyo University of Agriculture and Technology, Japan

Co-Chair: Prof. YUAN Peng

Vice-Chancellor of Rural Development Institute, CASS, China

13:00-13:20 **Community-Based Digital Farming Strategy (keynote)**

Prof. SHIBUSAWA Sakae
Secretary General / Treasurer of SCA, Professor Emeritus of Tokyo University of Agriculture and Technology, Japan

13:20-13:40 **Women Empowerment and Promoting Gender Equality in the Social Context of Myanmar (invited)**

Prof. Ni Ni HLAING
Professor of Mandalay University of Distance Education, Myanmar

13:40-14:00 **Digitalising the Countryside in China (invited)**

Prof. LV Peng
Professor of Institute of Sociology, CASS, China

14:00-14:20 **Environmental Challenges in the Transformation Process and Some Establishment and Management Needs in Coastal Areas Emphasis on the Southern Coast of Myanmar**

Prof. Nang Mya HAN
Professor of Myeik University, Myanmar

14:20-14:40 **Coffee Break**

14:40-15:00 **High-Resolution Plant Data for Intelligent Environmental Control in Greenhouse (invited)**

Prof. TAKAYAMA Kotaro
Professor of Toyohashi University of Technology, Japan
Professor of Ehime University, Japan

15:00-15:20 **Key Technologies of Smart Farming in China (invited)**

Prof. LI Minzan
Professor of China Agricultural University, China

15:20-15:40 **A Brackish Water Desalination System Applied to the Irrigation of Greenhouse Vegetable Crops: An Overview (invited)**

Prof. Seung Woo PARK
Professor Emeritus of Seoul National University, Republic of Korea
Member of National Academy of Science in Korea, Republic of Korea

15:40-16:00 **Christian Missionary Activities of Health Care Delivered during the Colonial Period in Myanmar (1824 to 1948)**

Prof. Than Than WIN
Associate Professor of Myitkyina University, Ministry of Education, Myanmar

Session 5: New Frontiers for Materials Design Room B

Co-Chair: Prof. Datuk Ir. Dr. Abu Bakar JAAFAR
Vice President of the Academy of Sciences Malaysia, Malaysia

Co-Chair: Prof. ZHANG Tongyi
Professor Emeritus of The Hong Kong University of Science and Technology, Hong Kong SAR,China
Founding Dean of The Materials Genome Institute at Shanghai University, Academician of CAS, China

13:00-13:25 **Thermal Stability of Nano-Grained Polycrystalline Alloys (invited)**

Prof. ZHANG Tongyi
Professor Emeritus of The Hong Kong University of Science and Technology, Hong Kong SAR,China
Founding Dean of The Materials Genome Institute at Shanghai University, Academician of CAS, China

13:25-13:50 **Heat Transfer Performance of Hybrid Nanofluid by Varying Mixing Ratio (invited)**

Prof. Nor Azwadi Che SIDIK
Associate Professor of Universiti Teknologi Malaysia, Malaysia

13:50-14:15 **Investigating the Potential Applications of Material Genome Technology (invited)**

Prof. XIANG Xiaodong
Professor of Southern University of Science and Technology, China

14:15-14:40 **Re-Energizing Industry with Nanotechnology: Keeping Malaysia in the Green Energy Race (invited)**

Dr. Rezal Khairi AHMAD
CEO of NanoTEch Malaysia, Malaysia

14:40-15:05 **Dual Adaptive Sampling and Machine Learning Interatomic Potentials for Thermal Transport in Materials with High-Order Anharmonicity (invited)**

Prof. ZHANG Wenqing
Professor of Southern University of Science and Technology, China

15:05-15:30 **Controlled Synthesis of Graphene Layers by Inductive Coupled Plasma Enhanced Chemical Vapor Deposition (invited)**

Prof. Aye Aye THANT
Professor of Myitkyina University, Myitkyina, Kachin State, Myanmar

15:30-15:55 **Emerging Active Functionality Utilizing Abundant Elements- Materials and Application of Electrides (invited)**

Prof. HOSONO Hideo
Professor of Tokyo Institute of Technology & National Institute for Materials Science, Japan

15:55-16:20	**Recycling of Rare Metals (invited)** **Prof. OKABE H. Toru** Professor of The University of Tokyo, Japan
16:20-16:35	**Manipulating Electronic Structure of Novel Correlated Materials by Tailoring Superlattices** **Prof. SHEN Dawei** Professor of SIMIT CAS , China
16:35-16:50	**Towards Chirality Control of Graphene Nanoribbons Embedded in Hexagonal Boron Nitride** **Prof. WANG Haomin** Professor of SIMIT CAS, China

Session 6: Advanced Energy Materials — Room C

Co-Chair: Dr. Kampanart SILVA
Researcher of National Energy Technology Center, Thailand

Co-Chair: Prof. SUN Shigang
Professor of Xiamen University, Academician of CAS, China

13:00-13:20	**Thermodynamic and Kinetics Tuning of Hydrogen Storage in Light Metal Hydrides (invited)** **Prof. ZHU Min** Professor of South China University of Technology, China
13:20:13:40	**Catalytic and Non-Catalytic Fast Pyrolysis of Biomass for Bio-Oil Production (invited)** **Prof. Adisak PATTIYA** Associate Professor of Mahasarakham University, Thailand
13:40-14:00	**Investigation on the Stability of Metallic Lithium Metal Anode for Advanced Li-Air Batteries (invited)** **Prof. CI Lijie** Professor of Harbin Institute of Technology,Shenzhen, China
14:00-14:20	**Inorganic Nanocatalysts for Efficient Electrochemical Material Conversion (invited)** **Prof. YAMAUCHI Miho** Professor of Kyushu University, Japan
14:20-14:30	**Coffee Break**
14:30-14:50	**Materials Research for Hydrogen and Fuel Cells (invited)** **Prof. SASAKI Kazunari** Professor of Kyushu University, Japan
14:50-15:10	**Redox-Mediated Electrochemical Energy Conversion and Storage (invited)** **Prof. WANG Qing** Associate Professor of National University of Singapore, Singapore

15:10-15:30	**Solid State Hydrogen Storage Technology with High Density and High Safety (invited)** **Prof. JIANG Lijun** Chief Expert of GRIMAT Engineering Institute Co. Ltd., China	
15:30-15:50	**Sustainable Recycling Technology for Li-Ion Batteries (invited)** **Prof. LI Li** Professor of Beijing Institute of Technology, China	
15:50-16:00	**Discussion**	
16:30-17:30	**Poster Session**	**Room A / B / C**
16:30-17:30	**SCA General Assembly** **SCA Member Organizations only**	**Room D**
17:30-18:30	**Closing Session**	**Main Venue**
	Chair: WANG Xi President of SCA Vice President of CAST, Deputy Governor of Guangdong Province, Academician of CAS	
	Declaration of SCA Statement **SHIBUSAWA Sakae** Secretary General / Treasurer of SCA, Professor Emeritus of Tokyo University of Agriculture and Technology, Japan	
	Greeting from President-Elect **Jang-Moo LEE** President of the National Academy of Sciences, Republic of Korea	
	Introduction to Indian Council of Social Science Research (ICSSR)	
19:00-20:30	**Banquet**	**Café Flora**

Day 3

Saturday, 15th May

8:30-12:20	**Scientific and Culture Tour**	
12:20-13:30	**Lunch Buffet**	**Café Flora**

Poster Session

On-site Posters Venue: Room A / B / C
The posters are available on our website:
http://sca2020materials.csp.escience.cn

Online Posters link

Session1-P1	**Trans-Disciplinary PM2.5 Exposure Health Research in Urban Areas**	**LUNG Shih-Chun Candice, SU Chih-Wen, LEE Shih-Yu, PAN Wen-Harn** Research Center for Environmental Changes, Academia Sinica, China Taipei
Session1-P2	**Knowledge and Practice of Research Plagiarism by Postgraduate Students Specializing in Computer Studies at Myanmar Universities**	**Chaw Ei SU, Chien-Kuo LI** University of Computer Studies (Taungoo), Ministry of Education, Myanmar
Session1-P3	**Balancing Work and Family Obligations during COVID-19: Myanmar Context**	**Ohnmar THEIN, Thandar THEIN, Rita THAPA** University of Medicine, Ministry of Health, Myanmar
Session1-P4	**Research Activities of Library and Information Studies Professionals in Myanmar Higher Education Institutions**	**Khine Zin THANT, Chien-Kuo LI** Mandalar University, Ministry of Education, Myanmar
Session1-P5	**Perceptions of the Language Teachers and Students towards Gender and Language Use in Myanmar Context**	**Aung Zaw HTOO, Su Su KYI, Wilai PHIWMA** Myitkyina University, Ministry of Education, Myanmar
Session1-P6	**Improving Students' Attitude towards Chemistry**	**Myint Myint KHINE, Mya Thet MON, Thin Myat NWE, Yumi NAKAMOTO, Shrestha MISHAN** Dawei University, Ministry of Education, Myanmar
Session1-P7	**Acknowledging Gender at Senior Level Workplace**	**Tun WIN, Aye Aye MAR, Himadri Sekhar ROY** Magway University, Myanmar
Session1-P8	**Students' Views of Effective Teaching in Terms of Gender Bias in University Settings**	**Nilar WIN, Kyaw SEIN, Kyoko OKA** Myitkyina University, Ministry of Education, Myanmar

Session1-P9	**Situational Interest in Reading Comprehension and Gender Differences of Myanmar EFL Learners**	**Khin Thet Thet AUNG, Yumi NAKAMOTO** Pha-an University, Ministry of Education, Myanmar
Session1-P10	**Gender and Work-Related Stress among University Teachers in Myanmar**	**Saw Lu Lu TUN, Rungkarn INTHAWONG** Yangon University of Distance Education, Myanmar
Session1-P11	**Isolation and Antimicrobial Activity of Soil Fungi from Magway Area in Ayeyarwaddy District**	**Myat Myat NWE, Tin Tin MAW** Lashio University, Myanmar
Session1-P12	**Investigation on Morphological, Phytochemical and Antimicrobial Properties of Tuber Extracts of Pueraria Montana (Lour.) Merr.**	**Tin Tin MAW, Myat Myat NEW** Lashio University, Myanmar
Session1-P13	**A Study on Influence of Employees' Age on Their Creativity**	**LUO Qi, YI Lina, TANG Chaoying** University of Chinese Academy of Sciences, China
Session2-P1	**Synthesis and Characterization of TPP/Sulphate Dual Crosslinkers of Chitosan-Coated Magnetite Nanocomposite by Co-Precipitation Method to Removal of Copper**	**Aung Than HTWE, Min Thet Maung MAUNG, Cho CHO** University of Yangon, Myanmar
Session3-P1	**Intrinsic Effect of Interfacial Coupling on the High-Frequency Intralayer Modes in Twisted Multilayer $MoTe_2$**	**LENG Yuchen, LIN Miaoling, ZHOU Yu , WU Jiangbin Wu, MENG Da, CONG Xin, LI Hai, TAN Pingheng** Institute of Semiconductors, CAS, China
Session3-P2	**First Principles High-Throughput Research on "Spin Orbital-Ferromagnetic" Coupling Material with Electric Field Induced Self Magnetic Field Polarization**	**LI Xin** SIMIT CAS, China

Session3-P3	**Void Embedded SOI- Upgrading SOI Material by 3D Design Methodology**	**LIU Qiang, MU Zhiqiang, LIU Chenhe, ZHAO Lantian , CHEN Lingli, WEI Xing, YU Wenjie** SIMIT CAS, China
Session3-P4	**Emerging SOI Solutions for Lower Power Applications**	**MU Zhiqiang** SIMIT CAS, China
Session3-P5	**A Simple Method to Estimate Kt2 of AlN Thin Films by HBAR Structure**	**ZHU Yubo** SIMIT CAS, China
Session3-P6	**Gate-All-Around MOSFET Fabricated by Planar Process**	**ZHAO Lantian, MU Zhiqiang , LIU Qiang, LIU Chenhe, CHEN Lingli , WEI Xing,YU Wenjie** SIMIT CAS, China
Session3-P7	**A Novel THz Waveguide Based on Closed Surface-Wave Photonic Crystal**	**ZHENG Yonghui, WANG Chang, TAN Zhiyong, CAO Juncheng** SIMIT CAS, China
Session4-P1	**An Ethnobotanical Study on Life of Native Shan Tribes in Kyaukme Township of Myanmar**	**Nwe Nwe HNINN, Khin Htwe MAW, Blesilda M. CALUB** Lashio University, Myanmar
Session4-P2	**Isolation and Structural Identification of Berberine and Another Unknown Compound from Tinosporia Cordifloria (Sin-Tone-Ma-Nwe)**	**Mya Thet MON, Kyoko OKA** Kyaukse University, Ministry of Education Myanmar
Session4-P3	**Morphological and Microscopical Characteristics of Leaves in Two Species of the Family Lamiaceae**	**Khin Nwe THAN, Nwe Nwe HNIN, Khin Htwe MAW, Lilito D. GAVINA** Panglong University, Myanmar

Session4-P4	**Leaf Architecture of Six Species in Solanaceae**	**Khin Htwe MAW, Nwe Nwe HNIN, Khin Nwe THAN, Ajarn Chomphu ISARIYAWAT** Loikaw University, Myanmar
Session4-P5	**Beliefs of Female University Faculty Teachers on Personal Skills of Teacher Leaders**	**Khin Mar MAR, PENG Qingyue, CHANG Woojin** Ministry of Education, Myanmar
Session5-P1	**Research on the Data Model of the Selection of the Organic Monomers in the ArF Immersion Photoresist and the Post Photolithography 3D Topology**	**DU Tianbo** Shanghai Institute of IC Materials, China
Session5-P2	**Multi-Scale Ion-Transport Analysis of Electrochemical Metallization Memristor**	**QIN Ruidong** SIMIT CAS, China
Session5-P3	**Nanocrystalline Zinc-Based Composite Coatings for Corrosion Protection and Cytocompatibility of the Biomedical WE43 Magnesium Alloy**	**LI Jingyao, LI Jian, JIN Weihong, YU Zhentao, Paul K. CHU** Jinan University, China
Session5-P4	**Biomechanical Effects of Various Interbody Fusion Cages on the Biomechanics of Patients with Osteoporosis**	**ZHANG Chenchen, HUANG Honghao, CHANG Minmin, TANG Shujie** Jinan university, China
Session6-P1	**Chemical Characterization of Bioactive Xanthone Derivative Compound Isolated from The Bark of Garcinia Pedunculata Roxb. (Met Lin Chin)**	**Thinn Myat NWE, Khin Mar YEE, Myo Thida CHIT** Sagaing University, Ministry of Education, Myanmar
Session6-P2	**International Conference on Religion in a Scientific Age**	**Khlot THYDA** Academician of Cambodian Academy of Sciences, Cambodia

Dining

Day 1 Thursday, 13th May

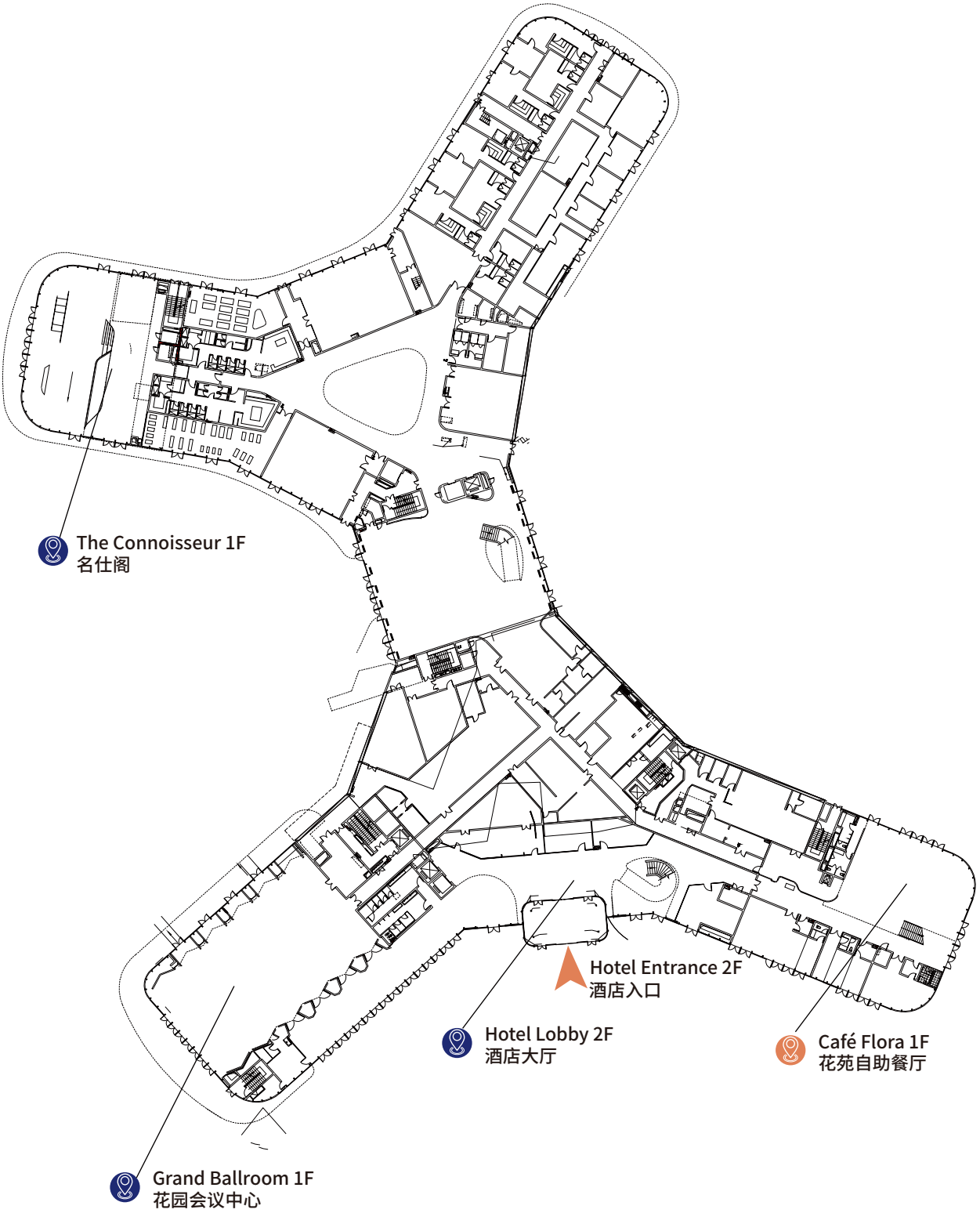
07:00-09:30	Breakfast	Café Flora 1F
12:00-13:00	Lunch Buffet	Café Flora 1F
18:00-20:00	Reception	Grand Ballroom 1F

Day 2 Friday, 14th May

07:00-09:30	Breakfast	Café Flora 1F
12:00-13:00	Lunch Buffet	Café Flora 1F
19:00-20:30	Banquet	Café Flora 1F

Day 3 Saturday, 15th May

07:00-08:30	Breakfast	Café Flora 1F
12:20-13:30	Lunch Buffet	Café Flora 1F


The Connoisseur 1F
名仕阁
Hotel Entrance 2F
酒店入口
Hotel Lobby 2F
酒店大厅
Café Flora 1F
花苑自助餐厅
Grand Ballroom 1F
花园会议中心

Introduction to Nansha

Location of Nansha

Greater Strategic Significance

Located at the west bank of the Pearl River estuary, Nansha is the geographical centre of the Guangdong-Hong Kong-Macao Greater Bay Area. It covers an area of 803 square kilometres and is administratively divided into 6 towns and 3 sub-districts, with the permanent resident population exceeding one million. Nansha has forged a "three-zones-one-centre" development pattern that features a state-level new area, a pilot free trade zone, a demonstration zone for comprehensive cooperation among Guangdong, Hong Kong, and Macao, as well as an urban sub-centre that also serves as a gateway hub of Guangzhou.

Faster and Healthier Economic Growth

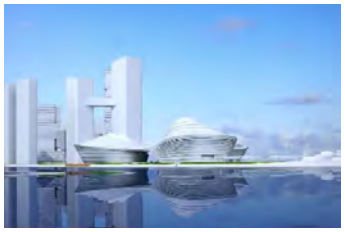
Nansha's GDP reached RMB 184.6 billion in 2020, up 7.1%. Its total imports and exports registered RMB 226.5 billion, representing a growth of 6%. Tax revenue totalled RMB 65.65 billion (including tariffs), with an increase of 5%. Nansha has attracted the settlement of over 200 projects invested by Fortune 500 companies. In the first quarter of 2021, the regional GDP increased by 20.6%. A total of 13,000 new companies were established. The actual utilisation of foreign capital reached USD 340 million.

Nansha as a Forerunner of Reform and Opening-up

Among Nansha's 719 accumulated institutional innovations, 43 have been replicated nationwide. Nansha ranked the 11th in an international mock evaluation that was based on the World Bank's Doing Business 2019. Nansha has attracted the settlement of many major cooperation platforms, such as Hong Kong University of Science and Technology (Guangzhou) and Guangdong-Hong Kong In-Depth Cooperation Park, as well as 3,000 Hong Kong and Macao companies, with a total investment of USD 113.1 billion.

Building up Fresh Momentum for Innovation

Nansha has introduced "16 measures to facilitate scientific and technological innovation" and other favourable policies to enhance Nansha's capacity for independent innovation.



GBA Science Forum

Efforts are going to be made to transform Nansha Science City into an important support area for the international science and technology innovation centre in GBA, a key carrier for the comprehensive national science centre, as well as a hub in the Guangzhou-Shenzhen-Hong Kong-Macao Science and Technology Innovation Corridor.

Nansha International Financial Forum: First of its kind in China

Stronger Industrial Base

Pony.ai: The highest valuated autonomous-driving company in China

The annual output value of Nansha's automotive industrial cluster exceeded RMB 100 billion. Guangzhou Futures Exchange has been successfully inaugurated. Many key projects, such as the permanent site of International Finance Forum (IFF) and GBA Science Forum, are advancing smoothly. In addition, emerging industries are gaining momentum in Nansha, including new-generation information technology, artificial intelligence, health and life sciences, marine technology, and aviation and aerospace.

Greater Recognition as a Gateway Hub

The throughput of Nansha Port registered 172.2 million TEUs in 2020 and increased by 14.4% in the first quarter of 2021. Nansha Port plays a key role in the development of Guangzhou Port into the fourth largest port in the world and the largest port for domestic trade in China. Furthermore, Nansha has been approved as a Comprehensive Bonded Zone and a National Demonstration Zone for the Promotion and Innovation of Import Trade.

Nansha Port Area: Main component of Guangzhou Port, the world's fourth largest por

Ideal Urban Environment for Living and Working

Nansha has been designated as the only International Special Zone for Talents in China. Nansha is home to Guangzhou Foreign Language School and other prestigious schools, as well as 7 tertiary hospitals such as The First Affiliated Hospital of Sun Yat-sen University (Nansha). Nansha enjoys a perfect integration of mountains, farmlands, rivers, sea, and towns. It has been recognised as the Most Liveable Community by the United Nations and one of China's Happiest Cities. The average PM 2.5 concentration is as low as 25. Nansha has succeeded in creating a quality living circle that is ideal for living, working and travelling.

Nansha Wetland Park

Highlights of Nansha' Favorable Policies to Facilitate Scientific and Technological Innovation

1

A selected number of scientific research platforms, that are within the scope of Nansha's preferential industries and will help sustain major scientific and technological innovation, will be provided a financial incentive up to 200 million yuan each; for those major scientific infrastructure projects that have been recognized as national, provincial or municipal-level key projects, Nansha will provide a matching amount of financial incentive in accordance with Guangzhou's facilitation standard.

2

Nansha will increase its efforts on talent introduction, for example, a high-level talent in Nansha will be entitled to claim up to 10 million yuan of settling-in allowance, while a high-end innovation and entrepreneurship talent or team in and out of China (including Hong Kong and Macao) can claim up to 20 million yuan of financial support.

3

Nansha will launch a series of targeted projects to tackle critical issues in association with core and key technologies, and up to 100 million yuan will be allocated each year on these projects, with up to 10 million yuan being rewarded to one project.

Logistic Support

Route Guidance

1. LN Garden Hotel Nansha—Guangzhou Baiyun International Airport
The distance is about 106 kilometers, and the riding time is one hour and 48 minutes.

2. LN Garden Hotel Nansha—Guangzhou South Railway Station
Route 1: The distance is about 53 kilometers, and the riding time is one hour and 19 minutes.
Route 2: The distance is about 63 kilometers, and the riding time is about one hour and 6 minutes.

3. LN Garden Hotel Nansha—Shenzhen Bao'an Airport
Route 1: The distance is about 65 kilometers, and the riding time is one hour and 15 minutes.
Route 2: The distance is about 53 kilometers, and the riding time is about one hour and 17 minutes.

Nanheng Metro Station of Metro Line 4 is 5 kilometers away to the Hotel, where a passenger can reach Guangzhou South Railway Station by switching to Metro Line 7, Guangzhou Baiyun International Airport by Line 3 and Guangzhou Railway Station by Line 2.

Service Hotline

Conference Hotline

XU Yongqi 许泳琪
+86 13609073333

XIAO Hongguang 肖宏广
+86 18964007886

Hotel Hotline

Guest Service Manager
+86 18027223851

OUYANG Hao 欧阳浩
+86 18819453772

Medical Advice Hotline

ZHANG Chen 张琴
+86 13660082281

Transport Service Hotline

XU Yi 徐仪
+86 18803797369

May 13-15, 2021
Science Council of Asia (SCA)
China Association for Science and Technology (CAST)
Guangzhou, Guangdong, China