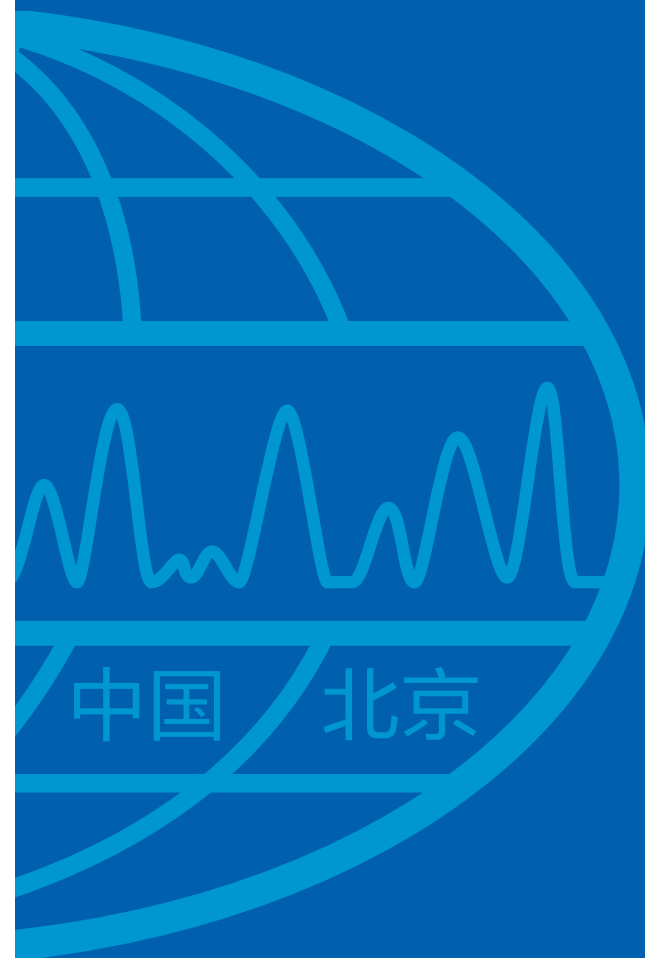




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BCEIA2021

A World Exposition on Analytical Science
and Biochemical Technology

The 19th Beijing Conference and
Exhibition on Instrumental Analysis

REPORT

ORGANIZER:
China Association for Instrumental Analysis (CAIA)
October 2021

BCEIA2021 北京分析测试学术报告会暨展览会
全球分析科学与生化技术博览 The 19th Beijing Conference and Exhibition on Instrumental Analysis

生命 · 生活 · 生态——面向绿色未来
MOVING TOWARDS A GREEN FUTURE



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Strategic Cooperation Media

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The 19th Beijing Conference and Exhibition on Instrumental Analysis (BCEIA2021) - A World Exposition on Analytical Science and Biochemical Technology was successfully held at China International Exhibition Center (Tianzhu New Hall), Beijing on September 27-29, 2021, despite various challenges including the COVID-19 epidemic. This year's BCEIA was a grand occasion, with a wide range of activities surpassing the previous BCEIAs in both scale and professionalization. 33,938 professional visitors attended the Conference & Exhibition, an increase of 20% from BCEIA2019. National media such as CCTV, China Daily and People.cn reported on the event.

The Exhibition attracted a total of 716 enterprises to showcase their products, representing a growth of 27% in attendance over the previous event. The exhibition area reached 53,400 m², representing a 51% increase compared with BCEIA2019. Exhibits included analytical instruments, life sciences equipment, laboratory equipment, reagents, software and analysis and testing services. The overall nature of the exhibits indicate that the trend of development on analytical instrument technology lies in automation, intelligence, miniaturization, online and special use while pursuing further improvement of performance parameters such as sensitivity and resolution.

Life, health, green, ecology and sustainable development were the main themes of this year's Exhibition. High-end products with higher resolution and sensitivity and lower detection limits have been displayed. Products and solutions relating to analysis of microplastics in the environment, photovoltaic new energy materials research, and vaccine R&D and quality control are closely tackling the current hot research areas. Domestic scientific instruments have also made breakthroughs in applications such as single molecule, single cell and single particle analysis, and semiconductor and novel Coronavirus detections. At the same time, there were higher levels of technological development of general analysis instruments and some have adapted cutting-edge technologies such as Artificial Intelligence, Internet of Things, Big Data, etc.

There were 627 academic presentations delivered by high-profile speakers, with an attendance of more than 3,760 experts and scholars during the 3-day Academic Conference, along with 327 Posters displayed, out of which 29 won Excellent Posters Awards granted by both BCEIA and ACS. Notably, there were 22 Chinese and foreign academicians that attended the Conference, as well as many world renowned experts and scholars.

Due to the effect of the epidemic, international communications have been impeded. However, the audience's enthusiasm for BCEIA continued, and the online conference also attracted great attention. Prof. Jonathan V. Sweedler, editor-in-chief of Analytical Chemistry of the American Chemical Society, Prof. Liang Li, Elected Fellow of the Royal Society of Canada, Prof. Derek Craston, Chief Scientist of the Laboratory of the Government Chemist, Prof. Serge Cosnier, Member of the European Academy of Sciences, Dr. Angelique Botha, Chairperson of ISO/TC 334 Reference Materials and other internationally renowned scholars conducted online academic exchanges.

The Plenary Lectures focused on life and health, green development and innovative research and application of cutting-edge scientific instruments. The content of the talks were mostly health related such as life sciences, brain sciences, medical diagnostics and pandemics caused by microbial infections. Introduction of some of the most advanced analytical instruments such as Integrated Toxicology Analyzers and Real-time Ultra-large-Scale High-resolution Macroscopy devices as well as discussions on perspectives of artificial intelligence, synthetic biology, flexible robot technology's application in biosensors and retrospective of the development of MS in China over the years, were also conducted during the Plenary Session.

The Summit on COVID-19 Diagnostics & Treatment highlighted the important role of analytical and testing technologies and instruments for COVID-19 diagnosis and treatment. Discussions on detection and diagnosis, transmission, omics research, vaccine development and so on were carried out. The

Summit had provided a great opportunity for the participants to exchange and promote new technologies, methods and achievements emerging during the battle against COVID-19.

The 10 Parallel Sessions and concurrent forums and meetings, highlighted this year's BCEIA with rich content and distinct themes. Academic talks on "Novel Coronavirus", "Semiconductor", "Chip", "Carbon Peak and Neutrality", "New Energy" and a wide variety of topics, such as third generation semiconductor materials silicon carbide, analysis of microplastics in the environment, complex system analysis, intelligent laboratory construction, food safety risk monitoring, microfluidic cell analysis, and so on have been presented and received warm attention by the audiences.

BCEIA2021 was not only in-person but also online. The Official Cloud Media Platform, displayed a breadth of content from conference live streaming, online dialogue programs to photo albums display. The video streaming platform attracted 7,273 online participants, and the cloud photo album displayed 11,000 photos. By the end of October 2021, a total of 310,000 photo album page views have been recorded.

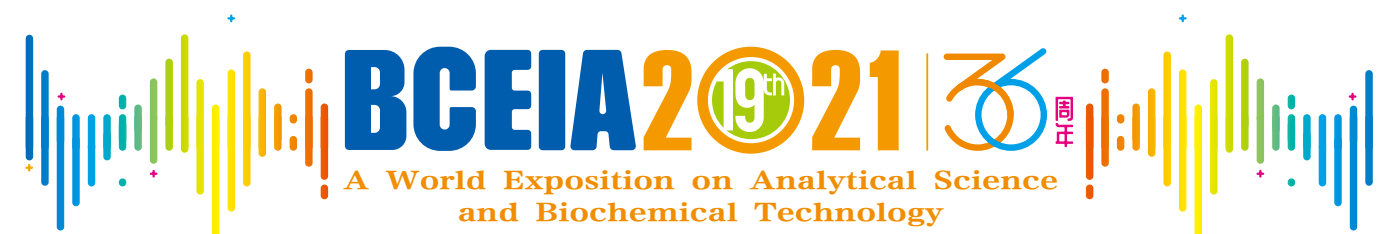
On 27th October 2021, China Daily's English edition on the grand opening of BCEIA2021 gave detailed introduction on the Conference and Exhibition, and in particular the Summit on COVID-19 Diagnostics & Treatment, for overseas visitors to obtain first hand conference information. BCEIA 2021 also drew great attention from many national media outlets such as CCTV and People.cn, which successively reported on BCEIA2021 through various channels.

Within the 53,400m² exhibition area, many on-site activities were conducted. Eight BCEIA themed routes on "BCEIA Gold Award" products, spectral instruments, imported new products, innovative nucleic acid detection products, chromatography and mass spectrometry products, biopharmaceutical products, water quality detection products and sample pretreatment products made the visits more pertinent and convenient for participants. Instrumental Analysis Talent Exchange Forum and the Exhibitors' Show were also conducted at the same time.

BCEIA2021 continued to offer free customized shuttle buses for visitors, and provided them with a convenient, fast, safe and comfortable experience. With 17 bus stations, nearly 150 buses and more than 300 trips between downtown Beijing and hotels around the venue, nearly 10,000 participants conveniently attended the Conference and Exhibition. The BCEIA shuttle bus service is not only a simple service but a reflection of the national priority to develop public transportation for low-carbon green travel which was in line with the theme of BCEIA2021, which is "Moving Towards A Green Future".

Although this year's grand event has concluded, its impact still continues to reverberate. See you again in Beijing in 2023.

China Association for Instrumental Analysis
2021.10



ACADEMIC CONFERENCE

Prof. Weihong Tan of Hunan University and Institute of Basic Medicine and Cancer, CAS, Academician of Chinese Academy of Sciences, was the Chairman of BCEIA2021 Academic Committee. The academic conference hosted over 600 academic talks in various forms, including the plenary session, parallel sessions, special forums, posters, concurrent meetings, etc.

The gathering of many Chinese and foreign academicians has always been a special attribute of BCEIA, and this year was no exception. Attendees included the Chinese Academy of Sciences and the Chinese Academy of Engineering members Guibin Jiang, Yukui Zhang, Xuemin Zhang, Weihong Tan, Hengqiang Ye, Erkang Wang, Shaojun Dong, Xiurong Yang, Jinghong Li, Fuchu He, Qionghai Dai, Tianwei Tan, Haizhou Wang, Yuliang Zhao, Zhigang Zou, Maili Liu and the Fellow of the American Institute for Medical and Biological Engineering, Xian-En Zhang, the Elected Fellow of The Royal Society of Canada, Liang Li, and Fellows of the Academia Europaea, Jianmin Chen, Xueji Zhang and Serge Cosnier.



BCEIA 2021 Plenary Session

The BCEIA Plenary Session has always been at the forefront of advances in science and technology. World renowned scientists in various fields have been invited to share their latest academic findings and outlook on the development of analytical science.



During the session, discussions were held to review the latest progress in frontier science, such as proteomics, metabolomics, brain science, neurochemistry, AI-based computational microscopy, green bio-manufacturing, functional nucleic acid, and advanced biosensing, and also to offer updates on innovative developments in domestic scientific instruments, such as mass spectrometers, toxicological analytics systems, and meso scale discovery (MSD) instruments. 9 out of 10 Plenary talks were about life and health-related topics.

OPENING REMARK

Prof. Guibin Jiang

Chairman, BCEIA2021
President, China Association for Instrumental Analysis, CAIA
Academician, Chinese Academy of Sciences
Fellow, Third World Academy of Sciences
Fellow, The Royal Society of Chemistry
Associate Editor, Environmental Sciences and Technology, American Chemical Society
Director, State Key Laboratory of Environmental Chemistry and Ecotoxicology
Dean, School of Resource & Environment, University of Chinese Academy of Sciences



OPENING REMARK

Mr. Defang He

Deputy Secretary General,
Ministry of Science and Technology of People's Republic of China



OPENING REMARK

Prof. Weihong Tan

Chairman, BCEIA2021 Academic Committee
Academician, Chinese Academy of Sciences
Fellow, Third World Academy of Sciences
Director, Institute of Basic Medicine and Cancer (IBMC), Chinese Academy of Sciences
Dean, The Cancer Hospital of the University of Chinese Academy of Sciences (Zhejiang Cancer Hospital)
Director, State Key Laboratory of Chemo/Biosensing and Chemometrics, Hunan University
Director, Institute of Molecular Medicine, Shanghai Jiao Tong University School of Medicine





CHAIR

Prof. Yukui Zhang

Vice Chairman, BCEIA2021
Vice Chairman, BCEIA2021 Academic Committee
Academician, Chinese Academy of Sciences
Dalian Institute of Chemical Physics, CAS



CHAIR

Prof. Erkang Wang

Advisor, BCEIA2021 Academic Committee
Academician, Chinese Academy of Sciences
Fellow, Third World Academy of Sciences
Changchun Institute of Applied Chemistry, CAS



CHAIR

Prof. Xinrong Zhang

Vice Chairman, BCEIA2021
Chairman, BCEIA2021 Organizing Committee
Secretary General, BCEIA2021 Academic Committee
Vice President, China Association for Instrumental Analysis, CAIA
Tsinghua University



CHAIR

Prof. Huwei Liu

Vice Chairman, BCEIA2021 Organizing Committee
Member, BCEIA2021 Academic Committee
Peking University



CHAIR

Prof. Xiurong Yang

Member, BCEIA2021 Academic Committee
Academician, Chinese Academy of Sciences
Changchun Institute of Applied Chemistry, CAS



KEYNOTE SPEAKER

Prof. Qionghai DAI

Academician, Chinese Academy of Engineering
School of Information Science and Technology, Tsinghua University

Topic: Computational Intravital Imaging



KEYNOTE SPEAKER

Prof. Fuchu HE

Academician, Chinese Academy of Sciences
National Center for Protein Sciences-Beijing

Topic: The Great Commission of Proteomics and its Challenges

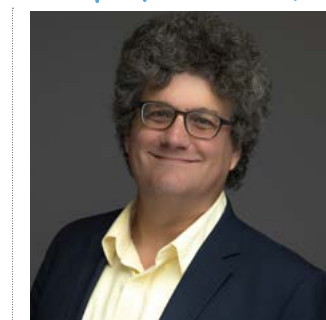


KEYNOTE SPEAKER

Prof. Guibin JIANG

Academician, Chinese Academy of Sciences
Research Center for Eco-Environmental Sciences, Chinese Academy of Sciences

Topic: Integrated Toxicology Analyzer & Environmental Risk Assessment



KEYNOTE SPEAKER

Prof. Jonathan V. SWEEDLER

University of Illinois, Urbana-Champaign

Topic: D-amino Acid-containing Neuropeptides: from Characterization and Structure to Function



KEYNOTE SPEAKER

Prof. Tianwei TAN

Academician, Chinese Academy of Engineering
Beijing University of Chemical Technology

Topic: Green Bio-manufacturing

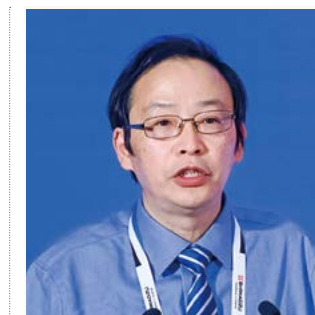


KEYNOTE SPEAKER

Prof. Yingfu LI

McMaster University, Canada

Topic: Functional Nucleic Acids for Pathogenic Bacteria Detection



KEYNOTE SPEAKER

Prof. Xiang FANG

National Institute of Metrology

Topic: Development of MS in China over 40 Years



KEYNOTE SPEAKER

Dr. Ralf D JOSEPHS

The International Bureau of Weights and Measures (BIPM)

Topic: Progress in SI-traceable Reference Measurement Systems for Protein Biomarkers

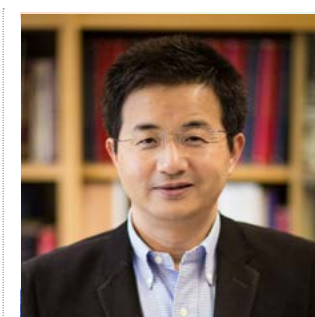


KEYNOTE SPEAKER

Prof. Xian-En ZHANG

Institute of Biophysics, Chinese Academy of Sciences

Topic: Advances in Biosensors



KEYNOTE SPEAKER

Prof. Liang LI

Elected Fellow, The Royal Society of Canada
University of Alberta, Canada

Topic: Deep Metabolomics: Analytical Challenges and Research Opportunities

BCEIA 2021 Parallel Sessions

A total of 317 talks were delivered during 10 Parallel Sessions, covering fields that included Electron Microscopy and Materials Sciences, Mass Spectrometry, Optical Spectroscopy, Chromatography, Magnetic Resonance Spectroscopy, Electroanalytical Chemistry, Analytical Techniques in Life Sciences, Environmental Analysis, Chemical Metrology and Reference Materials, as well as Labeled Immunoassay.

The parallel session on **Electron Microscopy and Materials Sciences** covered hot scientific issues of vital significance in cutting-edge fields, such as electron microscopy theory, materials science, new instrumentation techniques and methods, energy materials, environmental materials, structural materials, functional materials, nano-materials, and magnetic materials. Additionally, it also highlighted the extraordinary role of in situ transmission electron microscopy (TEM) in material designs.

The **Mass Spectrometry** parallel session covered a wide range of topics, such as basic theory of mass spectrometry, new instruments, and new techniques, as well as application of mass spectrometry in the areas of life-sciences, environment, energy, and the chemical industry. More specifically, the session offered reviews of the latest progress in lipids and metabolomics, proteomics and glycomics, mass spectrometry imaging, mass spectrometry methods for proteins and peptides, the development of small mass spectrometers, and recent advances in the application of atmospheric pressure mass spectrometry. It was noted that single-cell mass spectrometry has become a hot topic of interest in the mass spectrometry field.

At the parallel session for **Optical Spectroscopy**, renowned experts and scholars presented their latest research findings in plasmon resonance scattering spectroscopy, Raman spectroscopy, fluorescence, phosphorescence, and polarization spectroscopy, and offered updates on the new application of spectroscopy technology in the fields of life-process research, environmental monitoring, catalytic site analysis, and material diagnostics.

The parallel session on **Chromatography** showcased the latest progress in China in areas involving techniques for sample preparation, high efficiency separation, and high-sensitivity detection, as well as for chromatography applications. Recent research progress was highlighted in areas such as complex samples' rapid-detection treatment methods, proteomics enrichment techniques, capillary electrophoresis separation techniques, and integrated microfluidic in-situ liquid chromatography-mass spectrometry analysis probes.

The parallel session on **Magnetic Resonance Spectroscopy**, used the theme "From Spins to Life" as a way to focus on discussions of new techniques, methods, and advances for application of NMR in life sciences, including nucleic acid research, drug discovery, new advances in solid-state NMR, dynamic-structural properties of proteins in solution, and NMR methods related to biological phase transitions.

The parallel session on **Electroanalytical Chemistry** focused on discussions of fundamental theories to highlight how the emergence of new materials, new methods, and new technologies can contribute to practical applications of electroanalytical sensing and inject new vitality into the field of electroanalysis. While emphasizing the importance of analysis of single molecules and single cells on a micrometer and nanometer scale, the session also highlighted the significance of further developing electrochemistry to address major domestic national needs, so as to promote the realization of "Carbon Peaking" and "Carbon Neutrality".

The parallel session on **Analytical Techniques in Life Sciences** concentrated on showcasing the thinking and development paradigm of analytical science while solving the core issues of life sciences. To address complex life systems, dynamic processes, and mass information, experts and scholars are committed to developing a variety of in-situ, real-time, high-sensitivity, and high-specificity new analytical techniques and methods based on light, wave, electricity, magnetism, color, and mass quality properties. While depicting material characteristics at the single cell and single molecule levels, they are also exploring relevant effects and mechanisms to address important issues in life sciences.

The parallel session on **Environmental Analysis**, which centers around the theme of environmental and health effects, mainly involves academic discussions about health effects caused by environmental exposures and their mechanisms of action. The topics of presentations covered the formation mechanism of atmospheric fine particles, a characteristic analysis of toxic components, toxic effects and molecular mechanisms, cardiopulmonary damage and aging effects, cytotoxicology of artificial nanopollutants, DNA/RNA methylation and epigenotoxic effects caused by environmental exposure, and analysis of pollutants.

The parallel session on **Chemical Metrology and Reference Materials** focused on four topics: common technologies, food, environment, and clinical research and pharmaceuticals. To be specific, the session mainly discussed the accurate measurement of mycotoxins in food, detection of microplastics in the environment, demand for development of biological drugs standards, accurate measurement of clinical examination, and mutual recognition of relevant standards and other related hot issues.

The session on **Labeled Immunoassay** mainly involved discussions and exchanges on four topics: accurate diagnosis of new detection technology; new test indicators clinical validation transformation; test quality control and; test reference substances and traceability. Presentation topics included the application of mass spectrometry in clinical testing, control of gene expression in tumor glucose metabolism, automated chemiluminescence immunoassay (CLIA) for the detection of serum ASC concentration, performance evaluation of high sensitivity troponin assay, and application of flow fluorescence technology (or Luminex xMAP) in clinical research.

It should be noted that the BCEIA2021 Academic Conference was attended by many leading experts and scholars who have been honored as being among the world's 100 most influential analytical scientists by the Analytical Scientist Power List 2021. Prof. Jonathan V. Sweedler from the University of Illinois at Urbana-Champaign, USA, delivered a lecture by special invitation. Research fellows Guowang Xu and Yi Chen, and Professor Gongke Li and other experts also gave talks at the parallel sessions.





BCEIA 2021 Posters

The 10 parallel sessions received a total of 660 academic papers and 327 posters, 29 of which were recognized as Best Posters. The young scholars who were actively involved were presented with certificates issued by both the American Chemical Society (ACS) and the China Association for Instrumental Analysis (CAIA).



BCEIA 2021 Summits

Summit on COVID-19 Diagnostics & Treatment



Online Participants Statistics:

Unique Visitors: 1126

Page Views: 1453

With the ongoing spread of the COVID-19 pandemic, new variant strains, such as Lambda and Delta, which are more infectious than their predecessors, are still causing havoc. Although China has made significant progress in controlling the disease, some regions occasionally see sudden rises of new cases. The pandemic has not only taken a toll on international cooperation and exchanges, but also has transformed the way people live. On September 28, the China Association for Instrumental Analysis (CAIA) specially held the Summit on COVID-19 Diagnostics & Treatment during BCEIA2021. The Summit is another cross-discipline and cross-field academic gathering, following the International Summit on Analytical Instrumentation and In Vitro Diagnosis in 2019. This summit aims to discuss and promote new techniques, new methods, new achievements, which have emerged during the global fight against COVID-19, and to build a platform for cooperation. The purpose is to highlight the significance of analytics & testing technologies and instruments in diagnostics and treatment of diseases, primarily in nucleic acid and antibody detection, omics, modeling, and vaccine development.

Defeating COVID-19 will require a concerted effort from the scientific community, which means broad participation by experts from a wide variety of disciplines, including virology, immunology, lemmology, epidemiology, structural biology, chemistry, zoology, and ecology. This would enable us to thoroughly understand the pattern of infection and the pathology of the virus, discover the interaction between the virus and the host, build a mathematical model to predict and prepare for trends in the virus' spread, and accelerate the development of vaccines, drugs, and antibodies. Focusing on the topics of testing & diagnostics, transmission carriers, omics, and vaccine development, the forum invited multiple leading experts to deliver academic talks, in a bid to review scientific progress, enhance laboratory safety, and promote the application of new technologies. The ultimate goal is to restore normal international exchanges by assisting humanity in defeating the virus at the earliest possible time.

As well as attendance by multiple academicians, researchers, and diagnostic experts, the conference attracted thousands of attendees in total, both onsite and online via live streaming.

Welcome Messages



Prof. Guibin Jiang

Chairman, BCEIA2021
President, China Association for Instrumental Analysis, CAIA
Academician, Chinese Academy of Sciences
Research Center for Eco-Environmental Sciences, Chinese Academy of Sciences



Prof. Xuemin Zhang

Vice Chairman, BCEIA2021
Vice President, China Association for Instrumental Analysis, CAIA
Academician, Chinese Academy of Sciences
Academy of Military Medical Sciences

Chairs



Prof. Yukui Zhang

Vice Chairman, BCEIA2021
Vice Chairman, BCEIA2021 Academic Committee
Academician, Chinese Academy of Sciences
Dalian Institute of Chemical Physics, CAS



Prof. Zeper Abliz

Vice Chairman, BCEIA2021
Vice President, China Association for Instrumental Analysis, CAIA
Member, BCEIA2021 Academic Committee
Minzu University of China



Prof. Guangtao Yan

Chairman, Labeled Immunoassay Committee, CAIA
Member, BCEIA2021 Academic Committee
PLA General Hospital



Prof. Huwei Liu

Vice Chairman, BCEIA2021 Organizing Committee
Member, BCEIA2021 Academic Committee
Peking University



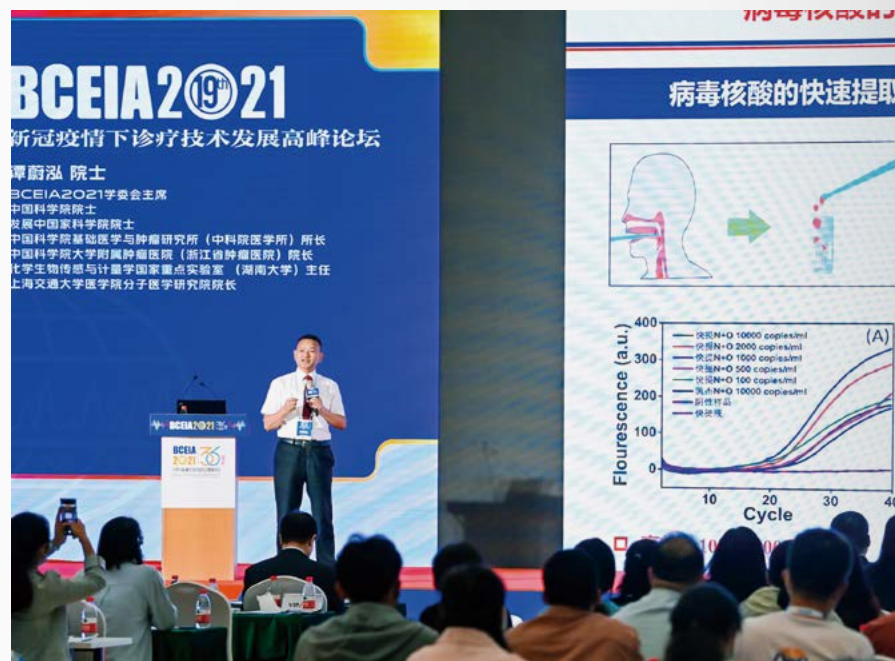
Prof. Jianwei Xie

Academy of Military Medical Sciences

BCEIA 2021 Summits

The Forum invited 10 well-known domestic and foreign experts who have made extraordinary achievements and contributions to the research of COVID-19. Most of them have amassed extensive experience by working on the frontlines of the fight against COVID-19. Their research achievements provided strong support in the battle against COVID-19 and have bought precious time for China and the World to defeat the pandemic.

In his report, Prof. Weihong Tan, Academician of CAS and Director, Institute of Basic Medicine and Cancer of the Chinese Academy of Sciences (IBMC), pointed out that molecular medicine offered a molecular approach to understanding the virus's mechanism of infection, which will facilitate the development of diagnostic reagents, drugs, and vaccines. The 2019-nCoV, a PCR COVID-19 Test Kit (constant temperature fluorescence amplification) independently developed by Prof. Tan and his team, is one of the only two onsite PCR test programs (out of more than 300) which have been approved through the fast approval channel of the State Council. When the pandemic broke out, Prof. Bin Cao, Vice President of the China-Japan Friendship Hospital, and his team acted immediately to arrive at the Wuhan Jinyintan Hospital to treat patients and took the lead in publishing their findings on Lancet which summarized the clinical characteristics of COVID-19, providing first-hand information for the world to understand the disease. Prof. Chuan Qin, Director of the Institute of Laboratory Animals Sciences of the Chinese Academy of Medical Sciences, built an animal model for COVID-19 which was honored as one of the Top 10 Achievements of China's Medical Sciences in 2020 and was cited by more than 200 theses published in leading journals such as Cell, Nature, and Science. Beijing Ditan Hospital, where Prof. Yajie Wang serves as Director of the Laboratory Department, has long been a hospital dedicated to emergency treatment, and during the pandemic it took the earliest action, provided the longest support, and treated the largest number of patients of all Beijing hospitals. During the forum, Prof. Wenjie Tan of the Chinese Center for Disease Control and Prevention, Prof. Yanyi Huang of Peking University, Prof. Tiannan Guo of Westlake University, Prof. Chengfeng Qin of the Academy of Military Medical Sciences, Prof. Dongqun Xu, Deputy Director of the National Institute of Environmental Health of China CDC, and Dr. Jim Huggett, Laboratory of the Government Chemist, UK, offered a briefing on the application of genome variation studies of COVID-19, sequencing of trace amounts of DNA and proteomics systems in studying the host response of COVID-19, and shared new progress on mRNA Vaccine Platform and aerosol transmissions.



Prof. Weihong Tan
Academician, Chinese Academy of Sciences
Institute of Basic Medicine and Cancer (IBMC), CAS
Hunan University
Topic: Novel Coronavirus Rapid Diagnosis



Prof. Bin Cao
Vice President, the China-Japan Friendship Hospital
Topic: From Pneumonia with Unknown Etiology to COVID-19



Prof. Chuan Qin
Director, Institute of Laboratory Animal Sciences Chinese Academy of Medical Sciences & Peking Union Medical College CAMS&PUMC
Topic: Establishment of Animal Models for Evaluation the Immunological Protection Against SARS-CoV-2 Infection and Application in Vaccine Development



Prof. Yajie Wang
Beijing Ditan Hospital, Capital Medical University
Topic: Establishment of Multidimensional Clinical Laboratory System for Infectious Diseases



Prof. Wenjie Tan
NHC Key Laboratory of Biosafety, National Institute for Viral Disease Control and Prevention, CDC
Topic: Research Progress of SARS-CoV-2 Genome Variants



Prof. Yanyi Huang
College of Chemistry and Molecular Engineering, Peking University
Topic: Sequencing Trace Amount of Nucleic Acids: from Single Cells to SARS-CoV-2



Prof. Jim Huggett
National Measurement Laboratory at LGC
Topic: Standardization of SARS-CoV-2 Molecular Diagnosis



Prof. Tiannan Guo Westlake University
Topic: Systematic Investigation of Host Responses to SARS-CoV-2 Using Proteomics



Prof. Dongqun Xu
Deputy Director, the National Institute of Environmental Health, CDC
Topic: The Role of Aerosol in Virus Transmission and Its Influencing Factors



Prof. Chengfeng Qin
Academy of Military Medical Sciences (AMMS)
Topic: Rapidly Deployable Vaccine Platform Against the Rapidly Evolving SARS-CoV-2

BCEIA 2021 Special Forums and Concurrent Meetings

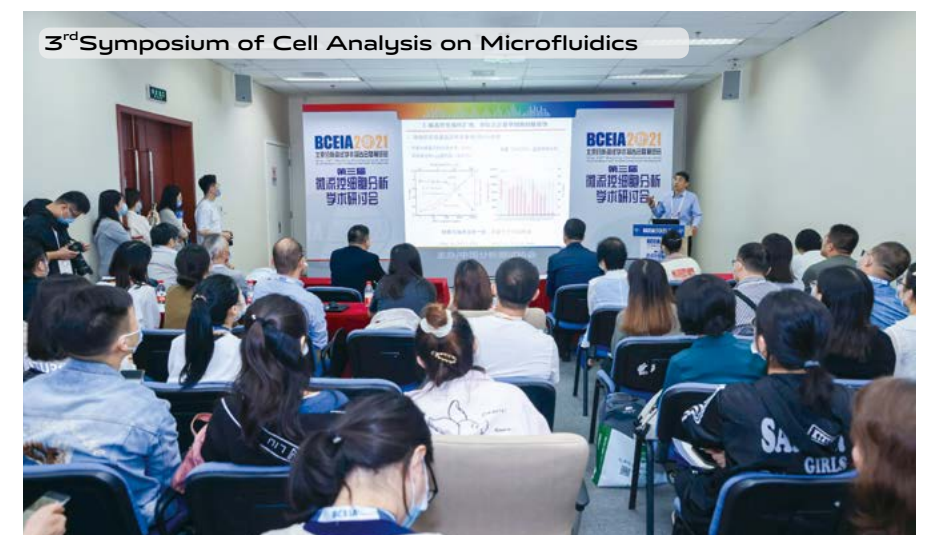
As an important component of the Academic Conference, special forums and concurrent meetings at BCEIA2021 served as occasions for exchanges between government representatives, experts, exhibitor R&D representatives, and young scholars on advanced analytical science and technology, and the interpretation of policies and regulations. These events were quite popular and highly praised by attendees as they covered academic areas such as mass spectrometry, chromatography, optical spectroscopy, magnetic resonance spectroscopy, and electron microscopy. Popular topics included food safety, bioengineering applications, new materials testing and evaluation, cell analysis, and surface analysis, as well as the construction, operation, and maintenance of smart laboratories, and the application of new products and technologies.



At the Third Food Safety Risk Monitoring Summit, one of the key special forums, notable experts specializing in food safety, inspection, and testing gathered together for extensive exchanges and discussions of food safety regulatory policies, advances in new technologies and equipment, and industry dynamics and trends. There were over 500 on-site attendees and more than 600 joining via online streaming.



Given the wide application of analytical techniques in life sciences, many sessions in special forums under the framework of BCEIA2021 focused on cell analysis, bioengineering, medical diagnosis, proteomics, bio-imaging, and other advanced technologies. Since cells are the most basic structural and functional unit in organisms, studies of cells are the foundation for life sciences research and a very popular topic for special forums this year. Taking the wide application of microfluidic chips as the topic, the Third Symposium of Cell Analysis on Microfluidics saw invitees from 20 renowned domestic and foreign scholars specializing in analytical chemistry and life sciences share the latest research achievements and development trends from both home and abroad, with this Symposium providing a range of academics, engineers, technicians, and students in the field of microfluidics and cell studies a notable opportunity for the exchange of ideas.



The Instrumental Analysis Forum for Universities & Colleges at BCEIA2021 aimed to build on a foundation of enhancing analytical testing and cooperative exchanges, raising the quality of services for analytical testing, and actively supporting the rapid development of analytical testing technologies. Prof. Wenqing Yao of Tsinghua University and Secretary-General of the University Analysis & Testing Committee of the China Association for Instrumental Analysis (CAIA) chaired the opening ceremony. Prof. Jinghong Li of Tsinghua University, Academician of CAS and Director of the University Analysis & Testing Committee, CAIA; Yan Zeng, Director from the Science and Technology Development Center under the Ministry of Education; and Prof. Xiaodong Han of Beijing University of Technology, Director of the Chinese Electron Microscopy Society, addressed the forum. The forum was held both online and offline, attracting an audience of nearly 3,000 participants. Participants and experts were engaged in Q&A and academic exchanges, from which online viewers also greatly benefitted.

Organized by the Young Scholars Academic Committee of CAIA, the Third China Young Scientists Forum, invited 10 laureates of the National Science Fund for Distinguished Young Scholars from the past two years in the field of analytical chemistry, to share and exchange ideas about the latest methods, technologies, and applications in life sciences, material analysis, and environmental science.



Scientific Experiment Standardization Forum

Prof. Haizhou Wang

Academician, Chinese Academy of Engineering
China Iron & Steel Research Institute Group
Director, China NIL Research Center for Proficiency Testing



Inspection and Testing on "Double Carbon" Innovation and Green Development Forum

Prof. Zhenzhu Ma

General Manager, China Building Materials Academy
President, China Building Material Test & Certification Group Co., Ltd.



Technology and Application of Mass Spectrometry Imaging Forum

Viktor (Beijing) Technology Co., Ltd



Conference on Sample pretreatment Technology Innovation

ewg1990.com



Pharmaceutical and Diagnostic Reagents Industry Metrology and Testing Alliance 2021 Annual Meeting

Prof. Hongmei Li

Director, Chemical Metrology and Analytical Science Division,
National Institute of Metrology China



3rd Food Safety Risk Monitoring Summit

Prof. Feng Zhang

Chief Expert and Vice President,
Chinese Academy of Inspection and Quarantine (CAIQ)



Xilong Product Release Conference

Xilong Scientific Co., Ltd.



Technical Training on Quality and Safety Testing of TCM Materials and Decoction Pieces

EasyLab



Semiconductor Materials Testing and Standards Forum

Prof. Zeming Sun

Director, Testing Technology Research Institute,
GRINM Group Corporation Limited



5th Summit Conference on the Construction and Development of International Intelligent Laboratory

Dr. Jinghua Zhang

Chairman, Laboratory Construction Branch, CAIA





BCEIA 2021 EXHIBITION

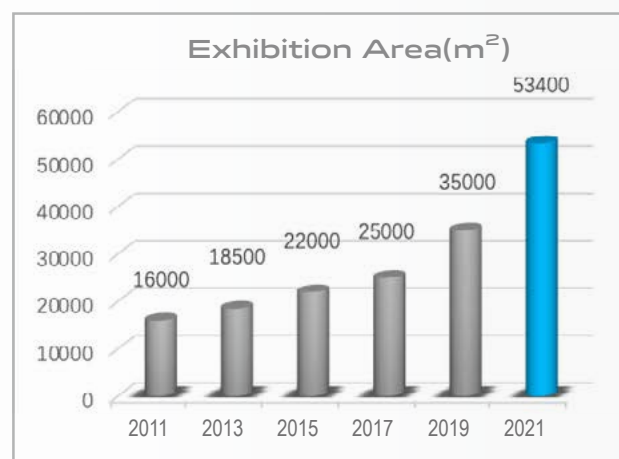
BCEIA 20¹⁹ 21 | 36 周年

A World Exposition on Analytical Science and Biochemical Technology

EXHIBITION

Positioned as a World Exposition for Analytical Science and Biochemical Technologies, BCEIA2021 showcased analytical instruments, life sciences instruments, physical property testing devices, reagents, laboratory equipment and management systems, consumables and key components, standard samples and reference materials, and other advanced lab equipment and technologies. 716 domestic and foreign producers and manufacturers were attracted to this exhibition that covered an exhibition area of 53,400m².

Exhibition Area : 53,400m²
Exhibitors : 716
Visitors : 33,938

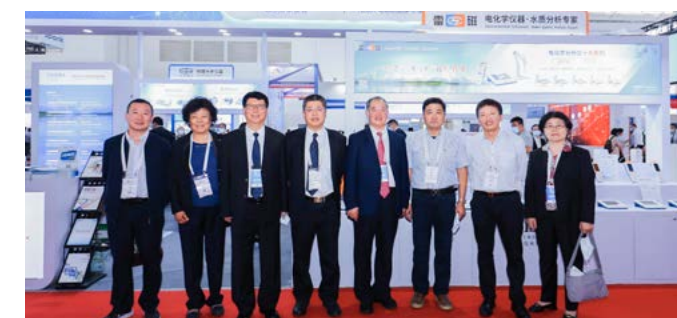
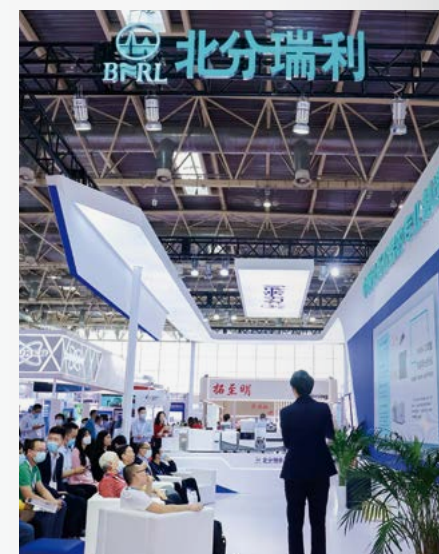




Well-known domestic and foreign instrument manufacturers, including Shimadzu, Perkin-Elmer, Agilent, Persee, FPI, Baode, Hanon, Haiguang, INESA, Anton Paar, Metrohm, Mettler Toledo, Keybay, NCS, Analytik-Jena, Techcomp, Hitachi, Skyray, HORIBA, FOSS, Merck, Eppendorf and IKA, presented their advanced technologies and latest products at BCEIA2021.

Many renowned manufacturers debuted their new products, and more than 30 companies participated in the roadshow. BCEIA has always been a platform for globally-renowned instrument manufacturers to debut new products, and is a grand event to display new technologies and achievements in scientific and technological instruments.

Since the outbreak of COVID-19, life and health have become a focus of people's attention. Chinese and foreign instrument manufacturers have launched multiple new products for the study of life sciences and medical diagnosis. As single-cell analysis has become a popular academic topic in recent years, renowned Chinese and foreign instrument manufacturers have made breakthroughs in single-cell proteomics technology based on mass spectrometry. At BCEIA2021, a domestically produced mass spectrometry flow cytometer for the analysis of a single cell or single particle was a blockbuster. As for the inspection of microbes such as viruses, Chinese made nucleic acid mass spectrometry detection systems had drawn great attention from the audience, among which two MALDI-TOF products were granted the BCEIA Gold Award. The Exhibition reflects the enormous progress of domestically produced instruments in adapting new methods, technologies, and applications, several examples of which are in-situ ionization mass spectrometry, lipid structure analyzer for lipidomics research, and ICP-MS for semiconductor detection and clinical research, all of which are causes for the belief that future R&D of high-end Chinese instruments will continue to surprise the public.



Defang He, Deputy Secretary-General of MOST, and Prof. Guibin Jiang, President of CAIA and Academician of CAS, visited booths of some renowned companies at BCEIA2021.

BCEIA has always been under the strong support of the Ministry of Science and Technology (MOST). On September 27, a delegation from the MOST had paid visit to BCEIA2021 to better understand new technologies and instruments under new requirements of environmental analysis and food safety, etc..





BCEIA2021 BCEIA Gold Award Winners

To continuously support the development of science and technology of Chinese analytical instruments, and to build up capacity to better equip China with self-produced equipment by mobilizing the creativity of those specializing in analytical instruments, CAIA had established the Beijing Instrumental Analysis Academic Conference & Exhibition Instrument Award. Over the past 3 decades, more than 300 domestically-produced analytical instruments have won this award, which has enormously advanced the development of Chinese analytical instruments, and is now widely recognized within the industry. Upon approval from the National Office for Science & Technology Awards, as of 2019, it was officially renamed as the China Association for Instrumental Analysis Award for Science and Technology, or shortened to "BCEIA Gold Award".

On September 28, 2021, the second day of BCEIA2021, the list of winners for the "BCEIA2021 Gold Award" was released. Out of 11 award winning products, 4 of them are mass spectrometer products.

List of Winners for the BCEIA2021 Gold Award (In no particular order)

No.	Prize-Winning Instruments	Name of the Company/Institute
1	FASP-05, Automatic Soil Sample Collection Preparation System	Beijing Lanyou Technology
2	HGCF-200, Automatic Continuous Flow Analyzer	Beijing HaiGuang Instrument Co.,Ltd.
3	HK-8610, Giardia and Cryptosporidium Automatic Identification System	Research Center for Eco-Environmental Sciences (CAS)/ HKY Technology Co.,Ltd.
4	D-MASTER Fully-Automatic Digestion Apparatus	Beijing LabTech Instrument Co., Ltd.
5	SA-50 LC-AFS	Beijing Titan Instruments Co., Ltd
6	EClassical3200 Multi-Mode High Performance LC System	Dalian Elite Analytical Instruments
7	CMI-1600 Automatic Microbial Mass Spectrometry Detection System	Guangzhou Hexin Kangyuan Medical Technology Co., Ltd. / Guangzhou Hexin Instrument Co., Ltd.
8	EXPEC 5200 GC/LC-TQMS	Hangzhou Expec Technology Co., Ltd
9	SparkCCD 7000 Full-Spectrum Spark Optical Emission Spectrometer	NCS Testing Technology Co., Ltd.
10	Ebio Reader 3700, Matrix-Assisted Laser Desorption Ionization (MALDI) Time of Flight (TOF)	East & West Analytical Instruments, Inc.
11	O-3100 Q Lipid Structure Analyzer	PURSPEC Technologies Inc.



BCEIA2021 Audience Statistics

At BCEIA2021 the number of professional visitors reached 33,938, an increase of 20% compared with 2019. The total unique visitors and participants reached 7,273 on the BCEIA Video Streaming Platform, and the peak number of online visitors reached 3,512. The BCEIA cloud photo album displayed 11,000 photos of the Conference and Exhibition. Till the end of October 2021, a total of 313,000 photo album views have been recorded.

Exhibition Area: 53,400m²
Number of Exhibitors: 716
Number of Visitors: 33,938

78% of the professional visitors participated the questionnaires. (Exhibitor representatives and some conference delegates are not included)

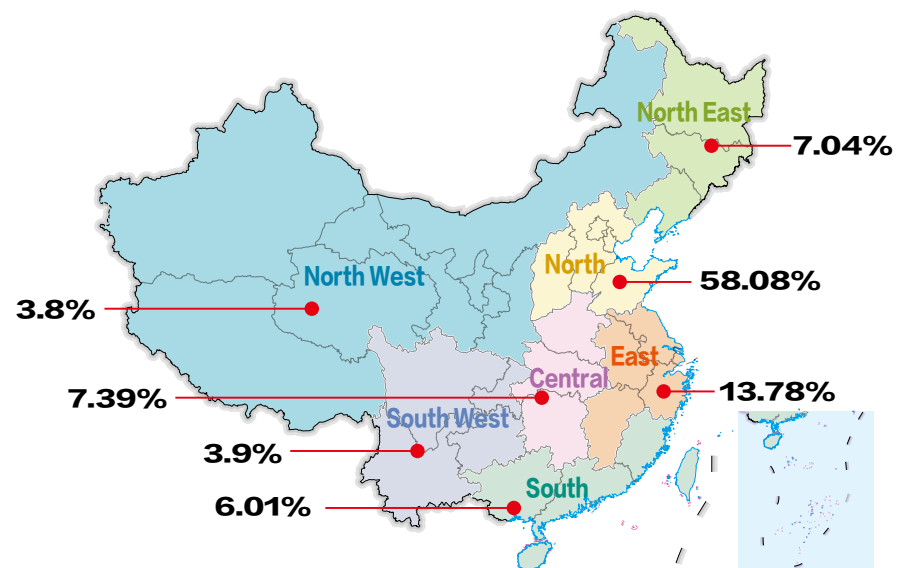
BCEIA2021 Audience Statistics

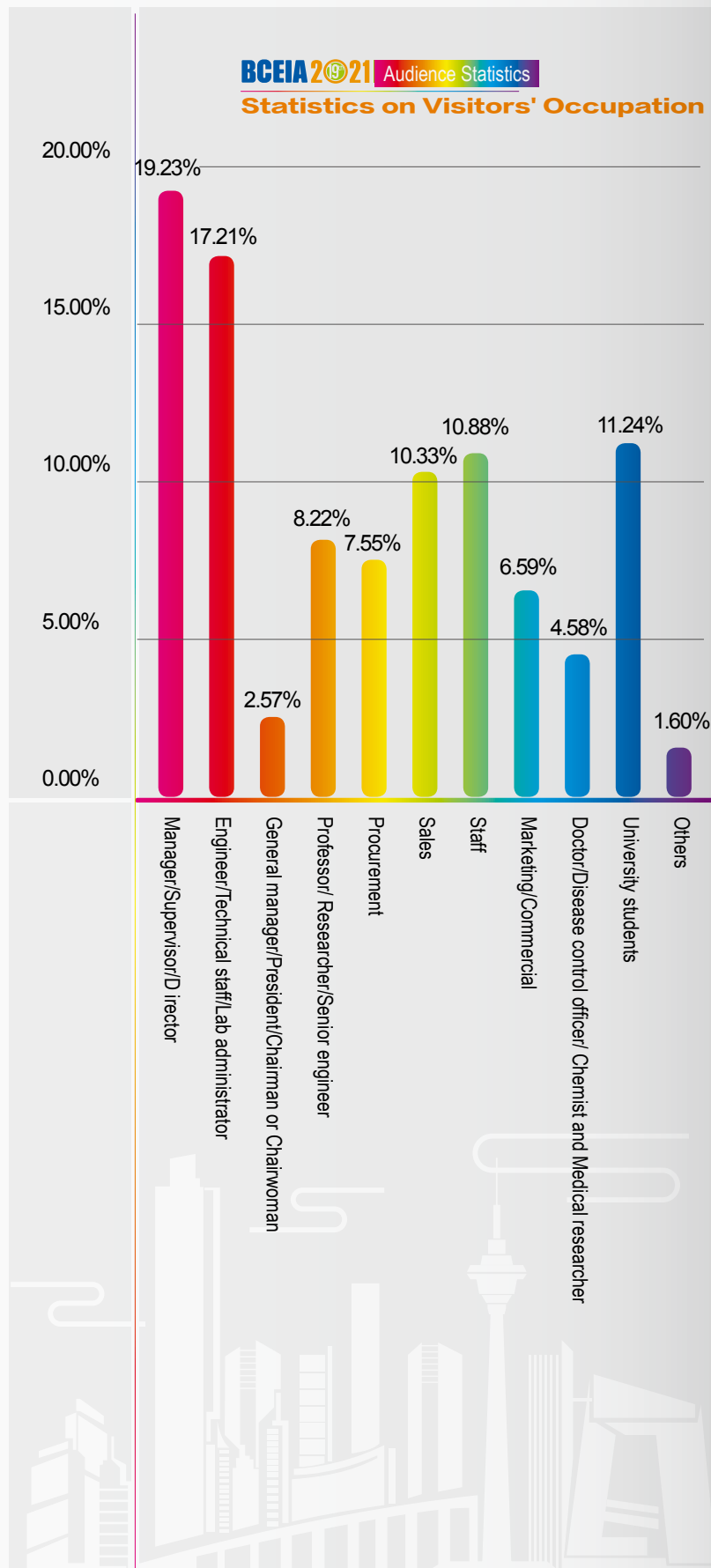
Statistics on Registered Visitors



BCEIA2021 Audience Statistics

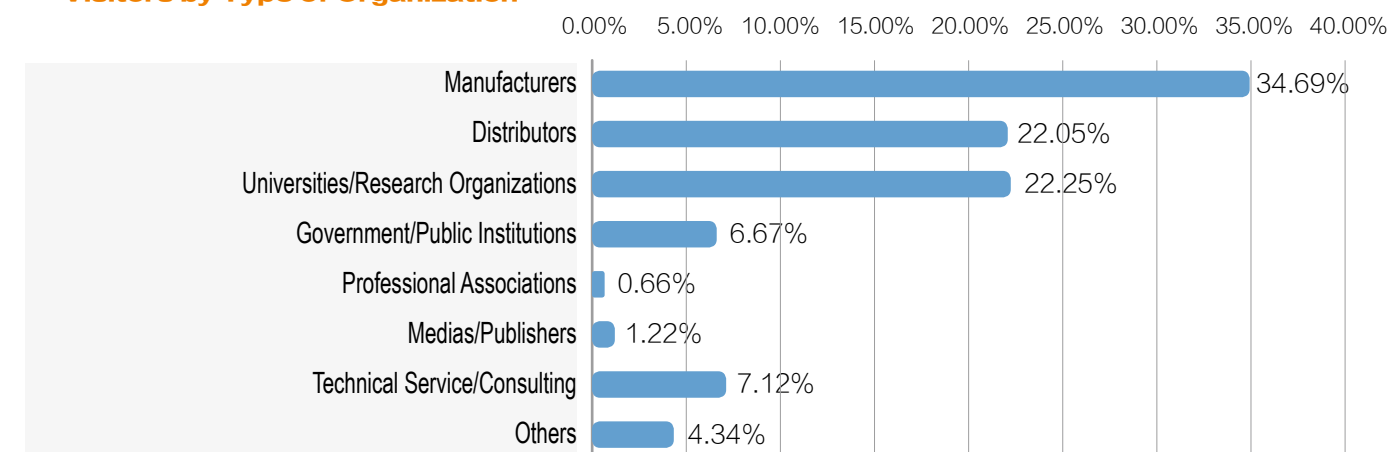
Mainland China Audience by Region





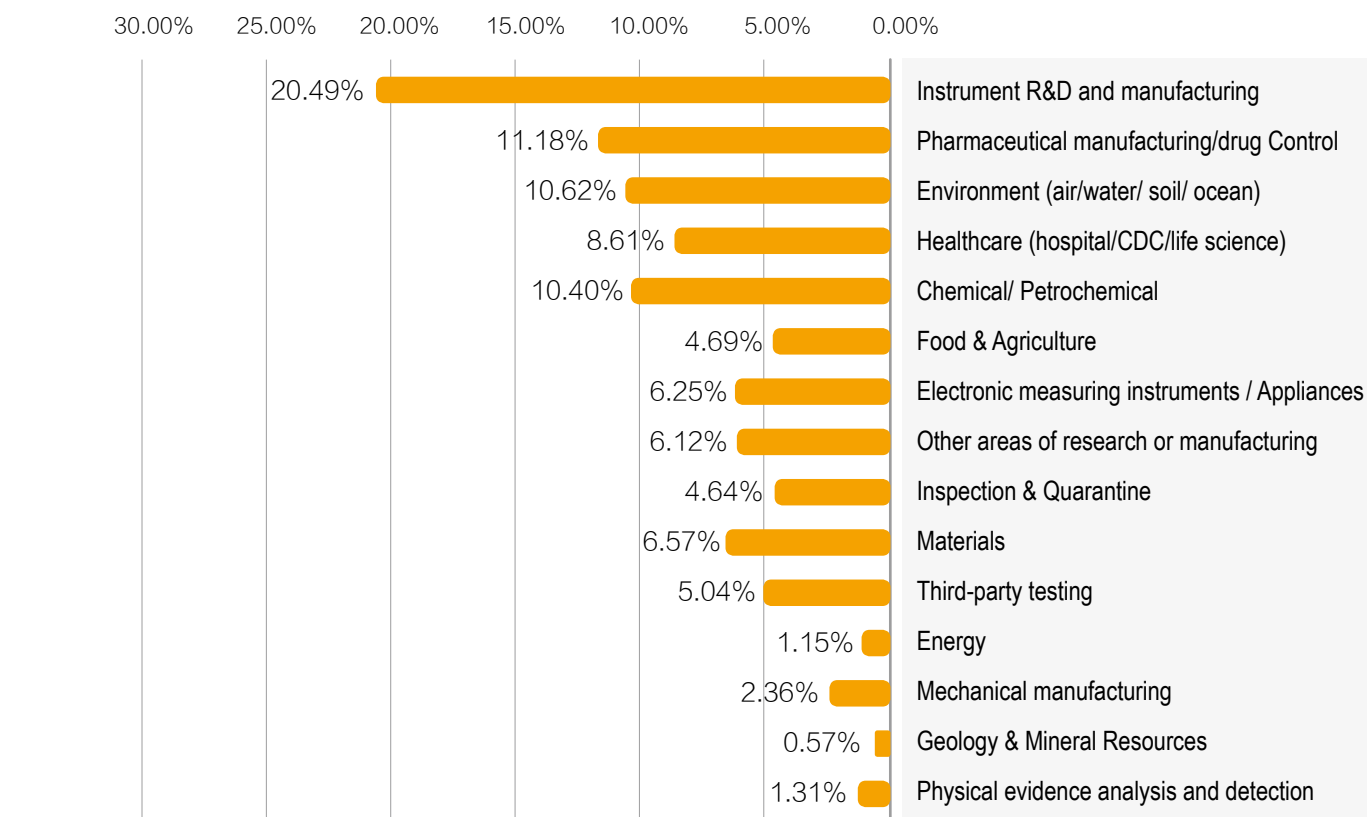
BCEIA 2021 Audience Statistics

Visitors by Type of Organization



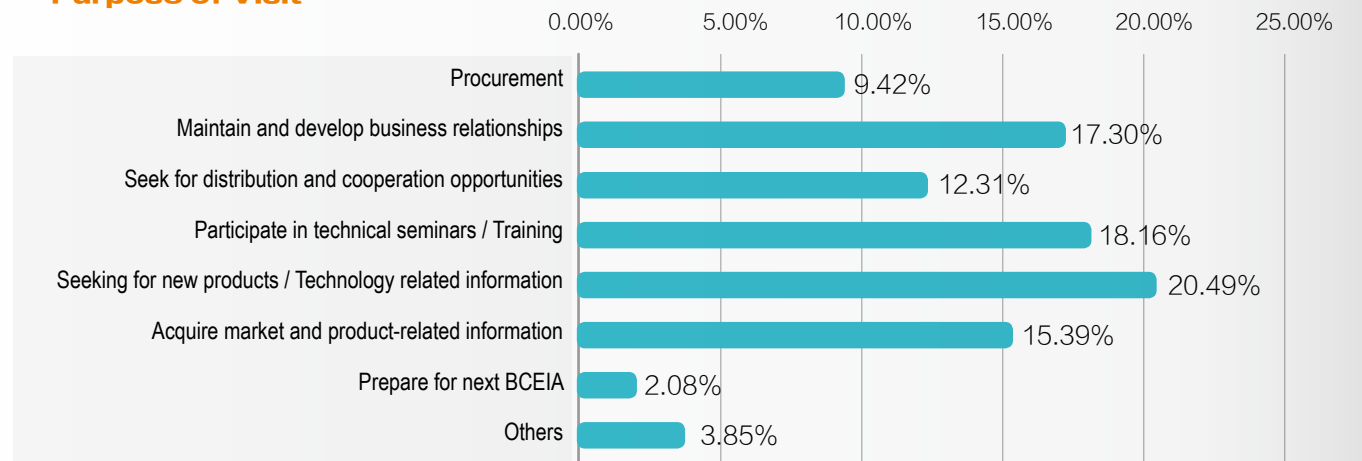
BCEIA 2021 Audience Statistics

Visitors by Industry/Field



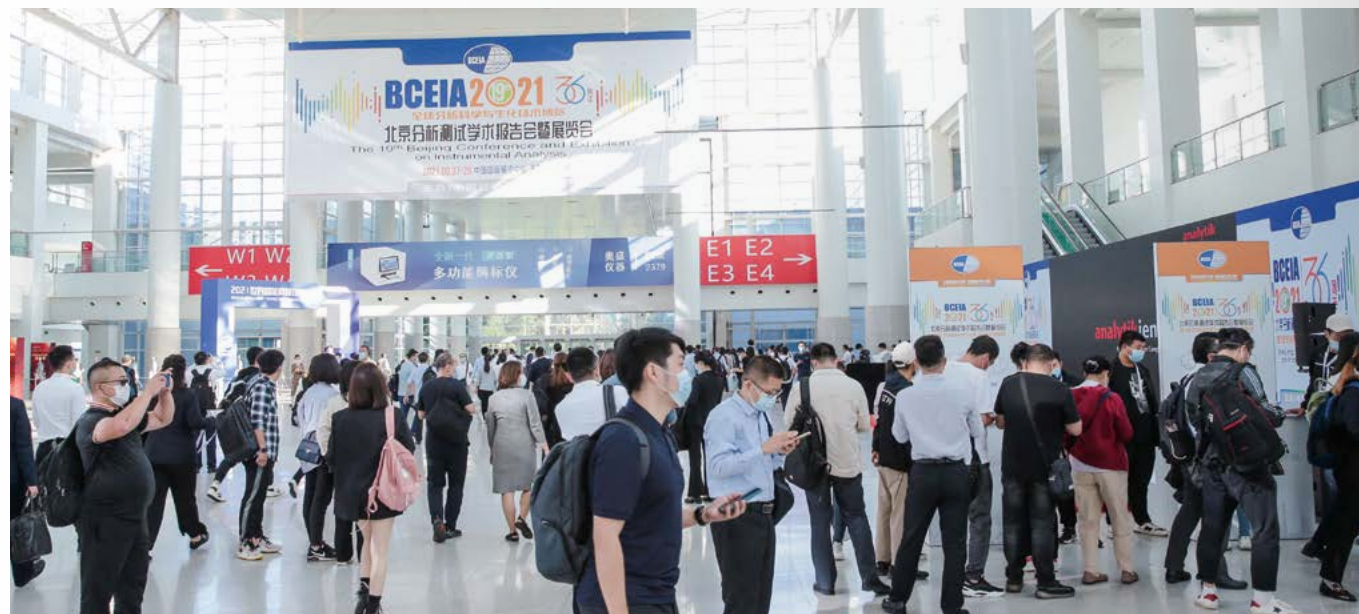
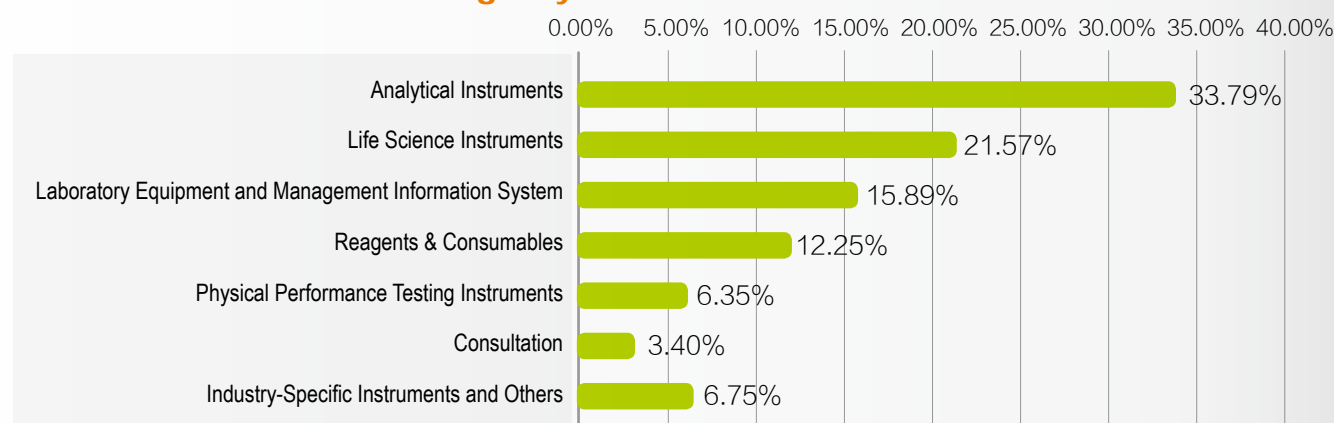
BCEIA 2021 Audience Statistics

Purpose of Visit



BCEIA 2021 Audience Statistics

Products and Services Sought by Visitors



BCEIA 2021 Cloud Media Platform Participants Statistics



BCEIA Cloud Video Streaming:

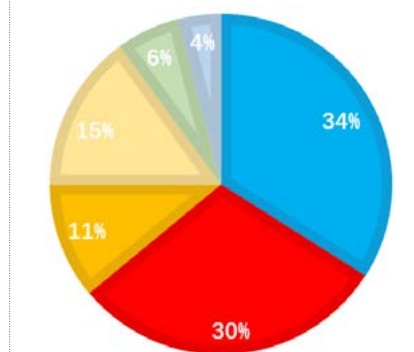
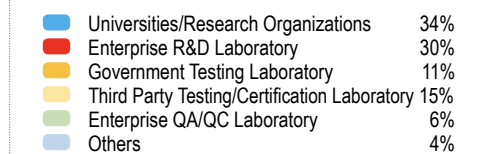
Time: September 27-29, 2021
Duration: 1,935 min
Unique Visitors (UV): 7,273
Page Views (PV): 37,513
Peak Views: 3,512
Likes: 3,674
Interaction: 1,123

BCEIA Cloud Photo Album:

Number of Photos: 11,000
Views: 301,000

BCEIA 2021

BCEIA Cloud Video Streaming Participants
by Type of Organization

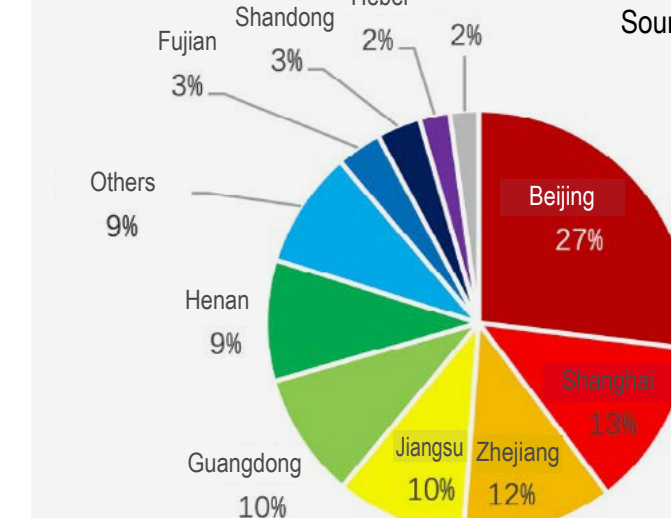


For the first time, BCEIA launched an online streaming program named "BCEIA Focus", and a video interview program called "BCEIA Interview Series". More than 30 professional experts, well-known business representatives, and veteran users talked about cutting-edge research topics and expressed expectations for BCEIA 2021. Since the launch of the BCEIA Interview Series in August 2021 on the BCEIA WeChat official account and on the platform of media partner -- instrument.com, the BCEIA WeChat official account has received 24,413 views while instrument.com had more than 20,000 views, indicating enthusiastic responses from within the industry.

The BCEIA Cloud Photo Album displayed 11,000 high-resolution photos and received 310,000 views. These photos record valuable memories for participants.

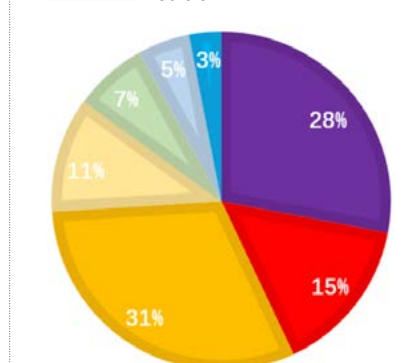
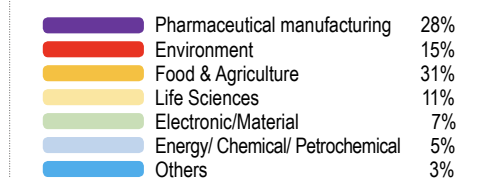
Nearly 200 exhibitors participated in the "All Lab" BCEIA live webcast activity. Online delegations from Xinjiang, Xizang, Inner Mongolia, Fujian, Heilongjiang and Hainan, had participated in the event through the platform. Statistics reveal that "All Lab" online exhibition platform has obtained about 7,000 registered visitors, and 20,000 views in total.

BCEIA Cloud Media Platform Source of Visitors



BCEIA 2021

BCEIA Cloud Video Streaming Participants
by Industry/Field





BCEIA 2021 On-Site Activities

BCEIA 2021

Building a strong nation by developing science and technology and cultivating talent is a major strategic policy initiative of the CPC Central Committee. During BCEIA2021, the Second Analytical Instruments Talent Exchange Forum attracted a great number of young scholars and scientific researchers.

The forum aims to implement the national action plan for cultivating technical talent and fully taps into labor market resources by establishing a platform for exchanges in the analytical instruments industry. It provides human resources to support the scientific and analytical instruments industry. More than 40 instrument companies, universities, research institutes, and testing institutions were invited to deliver reports on scientific apparatuses and instruments, environmental protection, biomedicine, testing and inspection, with the many industry players in attendance enthusiastic listeners and active participants in the lively discussions that followed.

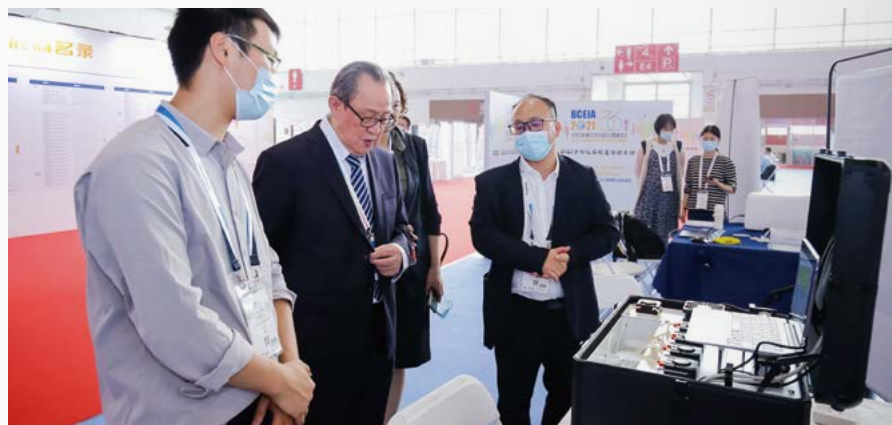
Analytical Instruments Talent Exchange Forum



BCEIA 2021

Companies including China Inspection Laboratory Technologies, Ancoren Technology, Kruss, Simple & Smart, Sino Healthtech, and Tianjin Nengpu joined in the interactive experience, with staff on site to demonstrate the rapid and accurate experimental process. Instruments involved included those for the testing of heavy metals in soil, water, food, and cosmetics by trace analysis, of illegal additives or abusive use of additives in foods, for qualitative inspection of medicines and health products, and contact angle measurement. This activity aimed to enhance the public's awareness of the application of analytical science in real life, and attracted many visitors to participate in interactive activities.

Analytical Instrument Rapid Testing Interactive Activity



Prof. Haizhou Wang, Academician of CAE visiting the Analytical Instrument Rapid Testing area.



BCEIA 2021

BCEIA FOCUS

官方直播



Impeded as it was by the pandemic, BCEIA emphasized the holistic presentation of contents both online and offline, and positioned the online content as an effective complement to BCEIA offline activities. A program named "BCEIA Focus" was launched to provide key exhibitors with quality services by leveraging CAIA's expert resources. Those that could not join the event offline could still experience the grand occasion on the BCEIA Video Streaming Platform. According to statistics, 7,273 visited the BCEIA Video Streaming Platform, and the peak number of online visits was 3,512 for "BCEIA Focus" program, with 1,123 engaging in online interaction, and 3,674 giving "likes" to this event.



BCEIA 2021

Media Coverage
by China Daily, CCTV and People.cn



BCEIA has drawn consistent attention from national media as China has in recent years deployed key strategies and policies for developing science and technology, as well as intelligent manufacturing. On September 27, the China Daily English Edition covered the BCEIA2021 opening ceremony and the Summit on COVID-19 Diagnostics & Treatment, providing overseas audiences with the latest information on the BCEIA2021. On September 28, CCTV and People.cn reported on site, with wide coverage of the Exhibition, the Summit on COVID-19 Diagnostics & Treatment, and other important contents. The news was broadcast on the News Streaming Room program on CCTV-13 on the evening of September 30. This is the first time for BCEIA to have received such extensive TV and online coverage, and marks a new highpoint for its public profile.



Prof. Huwei Liu
Peking University



Prof. Hongmei Li
Director, Chemical Metrology and Analytical Science Division,
National Institute of Metrology China



Dr. Zhigang Yang
General Manager, NCS Testing Technology Co., Ltd.



Dr. Ke Hu
President & General Manager, Beijing LabTech Instrument Co., Ltd.



Dr. Qinglin Zheng
Director, Marketing Dept. Beijing Purkinje General Instrument Co., Ltd.



Zhenfang Zhang
General Manager, Shandong Hanon Scientific Instruments Co., Ltd.



Jiaxiang Hu
General Manager, Marketing Dept., Analytical & Measuring Instruments Division, Shimadzu (China) Co., Ltd.



Haijian Wang
Marketing Manager, Analytical Chemistry, Greater China, Agilent Technologies (China) Co., Ltd.



Rong Huang
General Manager, Baode Instruments Co., Ltd.



Yaozhang Qiu
President & General Manager, Zhejiang Unite Scientific Instrument Co., Ltd.

BCEIA 2021

At BCEIA2021, more than 30 exhibitors participated in the Exhibitor Show to present new instrument products and technologies to visitors.

BCEIA2021 Exhibitor Show



BCEIA's on-site exhibition theme route activities and cloud-based sharing activities attracted tens of thousands of visitors to participate in the event.

BCEIA2021 Theme Tour Route

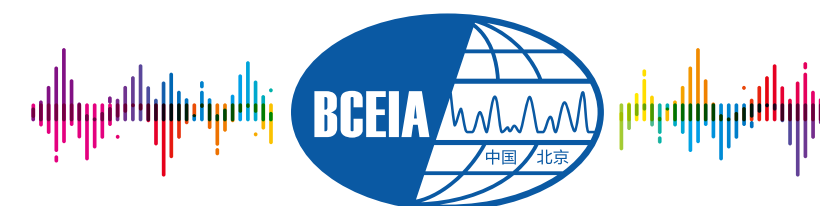


BCEIA 2021

150 BUSES
300 SHIFTS
17 STATIONS



A network of free shuttle buses connecting 17 stations - including many research institutes and universities across Beijing - provided participants with convenient services.



Analytical Science Creates Future

BCEIA 20th 2023

SEE YOU AGAIN



Special Acknowledgement:
CCTV, People.cn, China Daily

