Online Meeting

2nd China-Belgium Innovation Dialogue

Belgium – China 50 Years
中国比利时建交50周年

28 - 29 October 2021

Provisional PROGRAMME

28 October 2021, Plenary Session

Simultaneous Translation English ⇔ Chinese

Chairpersons

HUANG Wei, Vice Minister of MOST (Ministry of Science and Technology), China
Pierre BRUYERE, Chairman of the Board of Directors of BELSPO, Belgium

Moderator: **ZHAO Jing,** Deputy Director General

Department of International Cooperation, MOST, China

08:30 Registration

09:00 Welcome Words by the Chair Persons

HUANG Wei, Vice Minister of Ministry of Science and Technology, China

Pierre BRUYERE, Chairman of the Board of Directors of BELSPO, Belgium

09:10 Research and Innovation Landscape and Policy in China & in Belgium

Frank MONTENY, Director General, BELSPO, Belgium

ZHAO Jing, Deputy Director General, Department of International Cooperation of MOST, China

XIA Bing, Deputy Director General of Secretariat of CAIEP, MOST

09:30 Signing Ceremony

WBI — MOST MoU (short word by WBI)

UGent — South China Normal University (2MOUs)

1. MOU between South China Normal University (SCNU), P.R.C and Ghent University (UGent), Belgium
2. Joint Laboratory Agreement - Liquid Crystal and Optoelectronic Devices (LCPD)

Pom Limburg— Brinc in Guangdong

Cooperation Framework on the Establishment of "Belgium- China Project Acceleration Plan"

Brinc in Guangdong—Pom Limburg

09:35 Successful Cooperation Instruments

1. Scientific Cooperation to combat pandemics

CH: **'Ultrafast PCR: fundamentals and applications'**, SITRI, CHEN Chang

BE:**' Collaborations in Global Health',** Ghent University, Wei-Hong Zhang

2. Young Scientist Exchanges and Joint Research Centers

BE: **'Current Flemish-Chinese partnerships in basic research',** FWO, Isabelle VERBAEYS

'Intensifying research cooperation between China and French speaking Belgium, FNRS, Joël GROENEVELD

CH: **'Introduction to NSFC's Joint Funding with FWO and FNRS'**, NSFC, YIN Wenxuan

'Optics Valley of China & China Belgium Technology Center', Wuhan East Lake High-tech Development Zone, ZHONG Fuping

10:05 Coffee/Tea break

10:10 Highlights of Science and Innovation Cooperation

1. Factories of the Future

BE:**'Collaborative nanoelectronics platforms driving enabling technologies for new society challenges'**, IMEC, Lode LAUWERS

CH: **'Responsible Artificial Intelligence: Deep Coordination between Sustainable Development and Governance'**, CASIA, ZENG Yi

2. Life Sciences

CH: **'Cooperate sincerely to overcome difficulties; Chinese and Belgian scientists jointly develop new technology for cancer treatment'**, TELEBIO, YANG Guanghua

BE: **'A successful Belgian - Chinese cooperation to prevent one of the most important fish-disease'**, ULiège, Alain VANDERPLASSCHEN

3. Smart and sustainable cities

BE: **'VITO's activities in China – LIBOVITO'**, VITO, Dirk FRANSAER

CH: **'Smart City Helps Urban Low-carbon Development – Taking Xiong'an New Area digital urban planning technology integration platform as a case study'**, CAUPD, LIU Chang

Questions & Answers (moderator: ZENG Yi)

10:50 Concluding Remarks by Officials of MOST and BELSPO

BE: **Pierre BRUYERE**, Chairman of the Board of Directors of BELSPO, Belgium

CH: **ZHAO Jing**, Deputy Director General, Department of International Cooperation of MOST, China

11:00 End

29 October 2021, STI FORUM

English Working Language

Presentations and exchanges on R&I Initiatives and Opportunities:
<u>3 parallel sessions</u>

08:00 Registration

08:00-11:10 Parallel Sessions

I. Session Factories of the Future *(including AI, ICT and Microelectronics, Materials)*

08:30 Introduction

CSTEC: 'China-Belgium Science and Technology Innovation Cooperation and Co-funding Mechanism for Intergovernmental STI Projects', SONG Song, Deputy director

ENRICH: 'The European Network of Research and Innovation Centers and Hubs in China'**,** Sara MEDINA, Member of the Board, Sociedade Portuguesa de Inovação (SPI), Portugal

08:50 Panel

<u>Chair</u>:

BE: **Dirk TORFS**, Flanders Make, CEO

CH: **BI Hai**, JHL (Ji Hua Laboratory), Principal Investigator

<u>Speakers</u>:

CH:

1. **'AI in the Factory of the Future'**, JHL, BI Hai
2. **'Green optoelectronic materials and devices for future smart cities'**, South China Normal University, ZHOU Guofu
3. **'AI Improving Health Management after COVID-19',** InferVision, CHEN Kuan

BE:

1. **'Factory 4.0 Ecosystem in Wallonia & example of IA projects',** MECATECH, Thibaut VAN ROODEN
2. **'Your factory of the future 2030',** AMS, Johan POTARGENT
3. **'How a Chinese-Belgian collaboration resulted in a globally deployed AI software for COVID assessment'**, ICOMETRIX, Dirk SMEETS

11:00 Highlights from the chairpersons and photo of the speakers

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II. Session Life Sciences *(Biotech/engineering, Health/Pharmacy)*

08:30 Introduction

CSTEC: 'China-Belgium Science and Technology Innovation Cooperation and Co-funding Mechanism for Intergovernmental STI Projects', SONG Song, Deputy director

ENRICH: 'The European Network of Research and Innovation Centers and Hubs in China'**,** Sara MEDINA, Member of the Board, Sociedade Portuguesa de Inovação

08:50 Panel

Chair:

BE: **Tineke Van hooland,** bio.be/essenscia, Deputy Secretary General

CH: **LUO Yuchen,** CBTC, Director of Service Center

Speakers:

CH:

1. **'CBTC's cooperation in the field of Life Sciences',** CBTC, LUO Yucheng

2.**'Challenges and Medicinal Chemistry Strategies of Antiviral Drug Research'**, School of Pharmaceutical Sciences, Shandong University, LIU Xinyong

3.**'Research on Mycotoxins'**, Shanghai Academy of Agricultural Sciences, HAN Zheng

BE:

1.**'Health and Life Sciences Ecosystem of Wallonia: focus on Cell and Gene therapy'**, BIOWIN, Marc DECHAMPS

2. **'Characterization & risk evaluation of falsified medicines & adulterated dietary supplements'** SCIENSANO, Eric DECONINCK

3. **'Plant biotechnology and breeding for sustainable agriculture'**, Ghent University, Lieve GHEYSEN & Danny GEELEN

11:00 Highlights from the chairpersons and photo of the speakers

III. Session Smart and Sustainable Cities

08:30 Introduction

CSTEC: 'China-Belgium Science and Technology Innovation Cooperation and Co-funding Mechanism for Intergovernmental STI Projects', SONG Song, Deputy director

ENRICH: 'The European Network of Research and Innovation Centers and Hubs in China'**,** Sara MEDINA, Member of the Board, Sociedade Portuguesa de Inovação (SPI)

08:50 Panel

Chair:

BE: VITO, Han VANDEVYVERE, Senior Researcher & Project Manager

CH: TONGJI University, YUAN Yong

Speakers:

CH:

1. **'Industrialized Construction in the Future - Practice of the Sino-Belgian Joint Laboratory',** TONGJI University, YUAN Yong
2. **'The development of smart green energy for sustainable cities',** Guangzhou Institute of Energy Conversion, HUANG Yuping
3. **'Intelligent interpretation aided urban sustainable development monitoring using remote sensing',** AIR, CHEN Jingbo

BE:

1. **'Experience from the application of VITO's AI based smart control technology STORM on a large heat network in Taiyuan, China',** VITO, Somil MIAGLANI
2. **'Privacy, explainability and transparency in smart city AI. From principle to method',** Flanders Knowledge Centre 'Data and Society', Rob HEYMAN
3. **'Building the smart port city in Antwerp',** Port of Antwerp, Piet OPSTAELE

11:00 Highlights from the chairpersons and photo of the speakers

11:10 End of the STI Forum

ABSTRACTS

Plenary Session
28th October

"Successful Cooperation Instruments"

CHEN Chang
Deputy Chief Engineer
Shanghai Industrial Technology Research Institute

BIO short

Dr. Chang CHEN, received a PhD from KU Leuven and imec, is now Deputy Chief Engineer of SITRI, part-time professor of SIMIT (CAS) and Shanghai University, vice-director of Shanghai Academy of Experimental Medicine, expertise on the interdisciplinary bio- & into- technologies; received 3 national public funding grants and 1 Shanghai public funding grant; published academic journal and conference papers and chapters of books more than 100, granted and pended ~140 patents.

ABSTRACT

In Covid-19 pandemic, many novel technologies and products have been developed for facilitating diagnosis and treatment. SITRI and imec have internationally collaborated to develop an ultrafast NAAT in silicon for coronavirus diagnosis. Due to its interdisciplinary combination of biotechnology and info-technology (Si chip and AI), this technology shows unique advantages on fast, portable, and precise pathogens detections in clinical, becoming a new and promising trend in IVD.

Wei-Hong Zhang
Professor
Academic coordinator of China platform,

Department of Public Health and Primary Care
Faculty of Medicine and Health Sciences,
Ghent University
C. Heymanslaan 10
Entrance 75/ICRH
9000 Gent
Belgium
weihong.zhang@Ugent.be

BIO short

Wei-Hong Zhang, (MD, MPH. PhD, Postdoctoral of University of Oxford) is Professor and supervisor of PhD and Postdoctoral of Public Health at the Faculty of Medicine and Health Science, University of Ghent (UG). She graduated in Medicine in China and has been settled in 1991 in Belgium where she got two Maters diplomats and a PhD in the public health. Over 30 years, she has been connecting with Université Libre de Bruxelles (ULB) and UG in Belgium where she has been conducting research, teaching, and coordination of international projects, particularly 12 EU-funded Framework programs including 4 projects conducted in China in the field of public health. Her research experience covers perinatal health, environment health, evidence-based maternal care and policy making. She has published papers as the first author at British Medical Journal and Lancet. She is also academic coordinator of China platform of the Faculty of Medicine and Health Science at UG. To date, she has supervised more than 15 Chinese PhD students and postdoctoral. She has held the position of adjunct professor at several Chinese universities including Tsinghua University, Research Centre for Public Health, Beijing; Tongji University School of Medicine, Shanghai and the National Research Institution for Family Planning, Beijing. She is also Advisor of the Overseas Chinese Affairs Office of the State Council of China since 2014, and Expert of "Overseas Academicians and Experts Beijing workstation, has been awarded as "10 leading Chinese Talents on the Science and Technology in Europe 2019". Expert of European Commission under HORIZON 2020 in the field of public health. Being initiator and one of organizers of annual EU-China Health Forum since 2017.

ABSTRACT

Our research centre has been and continues to be active in China in the field of the global health for over more than 20 years now. The collaboration journey will be presented through different activities including the research projects, institution partnerships and academic/students exchanges. On a geographical level, we have developed a network of collaborators in 30 Chinese provinces including the universities, research institutions and healthcare institutions. The impacts of our collaboration include the common scientific publications, join PhD research project, short term training programs until the establishment of the Joint Laboratory for Global Health which make our collaboration more structure and consistence. We are confident that the collaboration with China will continue and be increased in the upcoming years in order to benefit for the development of this important field of global health at the University of Ghent and Chinese institutions but also to benefit for the populations of the two countries.

Isabelle Verbaeys
Head International Affairs

Research Foundation-Flanders (FWO)
Egmontstraat 5
1000 Brussel
Belgium

T +32 2 550 15 31
F +32 2 512 58 90
Isabelle.Verbaeys@fwo.be
www.fwo.be

BIO short

Dr. Ir. Isabelle Verbaeys (°1979) graduated in 2002 as a bio engineer at the KULeuven in Belgium. After working abroad in a number of different areas, industry and non-profit, she started her PhD in 2004 at the Medicine faculty of KULeuven, Kortrijk. In 2009 she obtained her PhD for her research in metabolism and the neuroendocrine regulation of the energy balance. She subsequently obtained a postdoctoral fellowship at the KULeuven. She started working at the Research foundation Flanders (FWO) in 2011 as a Senior Science Administrator responsible for research policy at a European and international level. In 2014, she was appointed Head International Affairs at FWO where she defines and leads the FWO's international department in order to further develop and optimize the FWO's strategy on internationalization of Flemish research. Under her guidance, the team international affairs is facilitating and coordinating all international mobility programs of FWO such as international exchange programmes, bilateral agreements for joint research projects, lead agency procedures and network activities for research. Dr.ir. Isabelle Verbaeys and her team managed a first EU COFUND programme called PEGASUS under FP7 and were successful in obtaining a second EU MSCA COFUND programma under H2020;[PEGASUS]².

ABSTRACT

As Head International Affairs of the Research Foundation - Flanders (FWO), dr.ir. Isabelle Verbaeys will highlight the various bilateral calls (research and mobility projects) FWO has with China. By providing more insight into the characteristics of these calls the audience will learn more about the broader context and importance of research collaboration between Flanders and China.

Joël Groeneveld
Senior Policy Officer European & International Affairs
Head of Research Mobility

Fonds de la Recherche Scientifique - FNRS
Rue d'Egmont 5
1000 Bruxelles
Belgium

T +32 2 504 92 70
Joel.Groeneveld@frs-fnrs.be
www.frs-fnrs.be

BIO short

International Research Policy Specialist with a decade of experience in managing international research funding and cooperative NGO activities. Provided an impeccable financial management and set up a reconciliation initiative between Armenia and Turkey while at the Institute for Historical Justice and Reconciliation.
Afterwards, I joined the European and International Affairs Unit at the F.R.S.-FNRS to work on International Cooperation (outside of Europe) and European Research Area networks (ERANETs, Public to Public partnerships). I participated in the launch of the European Commission's Horizon2020 R&I Framework programme and was a National Contact Point (NCP) for the Marie Skłodowska Curie Actions (2013-2017). I specialized in overseas European networks (EU-Africa, EU-Latin America, EU-India, EU-South East Asia, EU-Korea) and worked in networks across all scientific domains (Engineering, Health, Social and Human Sciences, Food and Agriculture, Climate and Biodiversity).
I developed into a senior expert on European and international research funding at the Fonds de la Recherche Scientifique - FNRS, thriving in an environment of networking and building and maintaining partnerships. I have fulfilled a leadership role in the implementation of the international strategy since 2016 and take responsibility for its bi- and multilateral cooperation and its mobility instruments.

ABSTRACT

Mr. Groeneveld will highlight the intensification of collaboration in research and innovation between French speaking Belgium and China, showcasing the renewed collaboration between the F.R.S.-FNRS and NASFC since 2017 and the continued joint efforts with Wallonie-Bruxelles International in working with MOST and the China Scholarship Council.

“Highlights of Science and Innovation Cooperation”

Lode Lauwers
Senior Vice President Business Development and Strategy

imec
Kapeldreef 75
3001 Leuven
Belgium
M +32 479 947 261
T +32 16 288 645
lode.lauwers@imec.be
www.imec-int.com I LinkedIn imec

BIO short

Lode Lauwers is Senior Vice President Business Development and Strategy in IMEC, the nanoelectronics R&D Center in Leuven, Belgium. He oversees Corporate Business Development of IMEC's Semiconductor Technology Business Lines, being responsible for imec's R&D collaboration revenue in semiconductor technology and giving guidance to a worldwide Business and Partnership Development team. In the area of CMOS technology, he is responsible for IMEC business offerings and strategy, covering worldwide collaborations in the eco-system of leading IC manufacturers, foundries, equipment and material suppliers and design and system houses.

Since he joined IMEC in 2005, he had various roles in IMEC's technology business and sales and partner relation management.

Earlier, he has been general manager of an ASIC design house, part of a US-based ASSP provider for the telecom industry, and scientific advisor for government funding in local and European cooperative networks in micro-electronics and telecommunications. From 1985 until 1992, he was researcher in Imec, in the area of MOS device modelling and simulation, which was also the subject of his PhD in 1993. He has a degree as Master in Electro-technical and Electronics Engineering (1985) and Ph. Doctor in the Applied Sciences (Electrical Engineering).

ABSTRACT

NanoElectronics is becoming increasingly an enabling technology present in our daily life. The digital 'smart' society, the exponential growth of data generation and usage, new applications in sensor networks, autonomous driving etc. are just examples of how our lives are building on semiconductor technology in all its flavours.

As a world-leading research and innovation centre in nanoelectronics and digital technologies, Imec leverages its state-of-the-art R&D infrastructure and its team of more than 5.000 employees and top researchers, for R&D in advanced semiconductor and system scaling, silicon photonics, artificial intelligence, beyond 5G communications and sensing technologies, and in application domains such as health and life sciences, mobility, industry 4.0, agrofood, smart cities, sustainable energy, and education. Our goal is to set up world wide collaborations, and be a neutral and leading platform working on next generation technologies. Our aim is to generate collaborative platforms and enablement of innovation with both world-industry leaders as well as start-ups, SME's, research centres, across the semiconductor value chain.

In this talk, we will briefly review the challenges ahead of us, and the scala of possible collaborations that we see as opportunities to work together in creating new innovation in general, and also in particular between Belgium, Flanders, and the Chinese companies in a win-win partnership. In that context, imec has built a strong experience curve over the past decade.

ZENG Yi

Professor
National Governance Committee for the New Generation Artificial Intelligence
Institute of Automation, Chinese Academy of Sciences

BIO short

Yi Zeng is a Professor and Deputy Director at Research Center for Brain-inspired Intelligence, and Co-Director of the China-UK Research Centre for AI Ethics and Governance, both at the Institute of Automation, Chinese Academy of Sciences. He is the Chair of the Professional Committee on Information Technology and Artificial Intelligence at the Science and Technology Ethics Committee, Chinese Academy of Sciences. He is a board member for the National Governance Committee of Next Generation Artificial Intelligence, China. He is in the Expert Group on the Ethics/Governance of Artificial Intelligence in Health, World Health Organization (WHO), and is an expert in the UNESCO Adhoc Expert Group on AI Ethics. His major research interests focus on Brain-inspired Artificial Intelligence, AI Ethics and Governance, and AI for SDGs.

ABSTRACT

In this talk, I will start with a discussion on different visions for the development of AI in a global context. Then I will discuss responsible AI through an in-depth analysis of the National Governance Principles for the New Generation AI and the Ethical Norms for the New Generation AI proposed in China. The discussion will focus on how to use AI to enable sustainable development goals, and the deep integration of sustainable development of AI and AI governance. The talk will end with discussions on how AI can achieve steady development under good governance and enable a sustainable and harmonious symbiotic society in the future.

YANG Guanghua
CEO
Shanghai TELEBIO

BIO short

Yang Guanghua, male, born in Chizhou, Anhui Province on November 8, 1979; A member of JiuSan Society, Distinguished Expert of National Thousand Talents Plan, Winner of the National Outstanding Young Engineer Award, Expert of Thousand Talents Plan of Zhejiang Province, Taishan Scholar of Shandong Province, Academician of the European Academy of Sciences, Arts and Humanities, Outstanding Academic Leader of Shanghai, Distinguished Professor and Doctoral Supervisor of Shanghai Ocean University; The Inventor of 'Nano-gun' therapeutic technology, Chief Scientist of the French Regenerative Medicine and Functional Medicine Research Center; The first prize of the 4th Chunhui Cup Innovation and Entrepreneurship Competition, The first place in the Biomedical Industry Group of the 5th China Innovation and Entrepreneurship Competition, The founder of Shanghai TELEBIO.

In 2006, he received his doctoral degree in the field of gene therapy, awarded by the University of Navarra, Spain. In 2008, he received postdoctoral training in CNRS. Regarding the research output, he has published more than 20 SCI papers, filed over 30 international and domestic patents. In May 2017, he obtained a global patent for the technology of IMDENDRIM "Nano-gun" for treating advanced cancer patients, and successfully completed several clinical trials in Shanghai and Zhejiang.

Currently, he serves as the director of the Special Fund for Cancer Prevention and Treatment of the Shanghai Science Foundation, a director of the China Medical Biotechnology Association, a standing committee member of the Precision Medicine Branch of the China Medical Biotechnology Association, Special Vice Chairman of Jiangsu Biotechnology Association in China, Executive Vice Chairman of Regenerative Medicine Branch of China Anti-aging Promotion Association.

ABSTRACT

Dr. Yang Guanghua has been engaged in the research and application of tumor therapy technology, and has made some achievements in the treatment of solid tumors by ImDendrim ("Nano-gun"Solid Tumor Treatment Technology). The research and development of "Nano-gun" targeted radionuclide therapy for solid tumor covers many fields and disciplines, through the sincere cooperation with Belgium, we have successfully realized the preparation and production of radionuclide rhenium 188, which is the core technique on this regard, to ensure the success of clinical research. In the future, we will continue to work together with Belgium to make joint effort to solve the problems to the human beings worldwide, we should keep moving forward hand in hand, and empower, create, and encourage miracles!

Prof. Alain Vanderplasschen

Full professor
Immunology
Faculty of Veterinary Medicine
Department of Infectious and Parasitic Diseases
University of Liège
Belgium

Keywords: Aquaculture, carp, infectious diseases, vaccines.

BIO

Alain Vanderplasschen is Doctor in Veterinary Medicine (University of Liège, 1991). After a PhD thesis (ULiège, 1995) under the supervision of Prof. P.-P. Pastoret, he did a second PhD thesis at the University of Oxford (UK) in the laboratory of Prof. G.L. Smith. In 1998, he became the first veterinarian scientist to obtain a permanent position in the history of the Fonds National Belge pour la Recherche Scientifique (FNRS). Alain Vanderplasschen has a strong background and track record as a veterinarian virologist and immunologist. For nearly three decades, he has been studying host-virus interactions with three special interests: (i) understanding virus evolution, (ii) unraveling the mechanisms developed by viruses to evade the immune response of their host, and (iii) development of new veterinary vaccines. He is the promoter and co-promoter of respectively 16 and 7 PhD theses defended. Two of these PhD theses were awarded to Chinese students who studied in his lab. He is the author of 169 publications listed in Scopus in category "Immunology and Microbiology". These publications are the source of more than 5000 citations and an H-index of 41. He is also the inventor 5 granted patents.
Over the last ten years Alain Vanderplasschen has continuously demonstrated an ability to develop, in parallel, both fundamental and applied researches in the field of fish virology. In 2016, he became the first veterinarian scientist to obtain the prestigious "GSK vaccines" award (created in 1959) for his work: The infection of carp by Cyprinid Herpesvirus 3: a homologous host-virus model to study vaccinology and fundamental immunology. This work was at the origin of the cooperation between the University of Liège and the Ningbo Sansheng Biological Technology Co., Ltd, the latter is the leading veterinary pharmaceutical company for animal reproduction in China.

ABSTRACT of the presentation:

The common carp (*Cyprinus carpio*) is one of the oldest cultivated freshwater fish species, and is now one of the most economically valuable species in aquaculture. It is widely cultivated for human consumption, with a worldwide production of 3.8 million tons in 2012 representing US$5.2 billion. Furthermore, its colourful ornamental varieties (koi carp), grown for personal pleasure and competitive exhibitions, is one of the most expensive markets for individual freshwater fish. In the late 1990s, a new virus disease emerged in the carp population and spread rapidly through the world. This disease is caused by a virus called Cyprinid herpesvirus 3 (CyHV-3). It has caused ecological impact and induced severe economic losses in the common and koi carp industries. The economic importance of CyHV-3 has rapidly stimulated research efforts aimed at building essential knowledge for the development of diagnostic and prophylactic tools. The laboratory of Prof. Vanderplasschen has been at the far front of this research. His laboratory is now involved in a close collaboration with Ningbo Sansheng Biological Technology Co., Ltd to bring to the field key tools to control CyHV-3.

Dirk Fransaer

Flemish Institute for Technological Research VITO NV
Boeretang 200
2400 MOL
Belgium

BIO short

Dirk Fransaer graduated as Civil Engineer Construction in 1980 at the University of Ghent and as Civil Biomedical Engineer in 1985 at the KULeuven. he worked from 1980 till 1985 as an assistant professor at the Laboratory of Hydraulics of the University Ghent and from 1986 till 2000 as project engineer at Eurosense, an international remote sensing company, interrupted from 1986 till 1987 to work as project engineer at T.E.R.A.D.E.C., Travenol Europe Research and Development Centre, a division of Baxter-Travenol World Trade.
He is since 2001 managing director of VITO, the Flemish Institute for Technological Research. VITO is an independent and customer-driven research organization which provides innovating, technological solutions and scientifically based advice and support, to stimulate sustainable development and to reinforce the economic and social structure in Flanders. VITO conducts research and develops innovative products and processes in the fields of energy, materials, chemistry, health and land use.
Dirk is an honorary professor at the KULeuven since 2017 and member of the Belgian Academy of Science since 2011. He is chairman of the Audit Committee of the University of Antwerp (UA) since February 2014 and member of the board of Von Karman Institute, an internationally renowned research and education institute in the field of aerodynamics and fluid flow.
He is chairman of LIBOVITO since 2010, a 100 % daughter company of VITO asia and president of VITO Arabia in Dubai and VITO Middle-East in Doha (Qatar). VITO has over a 1000 collaborators with an available budget of over 210 MEUR in 2021.

ABSTRACT

VITO started its present activities in China around 2005 based on projects financed by the Flemish government and by the EU. In 2009 VITO looked for a permanent and sustainable presence in China, and India. In 2010 a double structure was set up: VITO Asia in Hong Kong and Libovito in PR China. VITO has always had the attention of the highest officials of PR China resulting in the visit of then vice-premier Liu Yandong to VITO's headquarters in 2015 or the invitation extended by PM Li Keqiang to VITO's managing director in 2019.
VITO Asia serves as a rep office for VITO's overall activities in China while Libovito, a 100 % daughter company of VITO Asia, concentrated on environmental projects. Among the projects executed through VITO Asia resort a license deal for STORM, software which acts as a District Heating Controller, energy efficiency study for a coal mining truck or the patent sale of VITOFoam, a method to produce a porous TI-foam.
Libovito has been concentrating on environmental problems and projects. The first attention went to air quality management studies with a market breakthrough based on OPAQ, a statistical prediction model of air quality specifically tailored to the Chinese market and available data. Also IFDM got a Chinese make-over whereby the emissions from single source/points could be traced back to their source.
Recently Libovito is also concentrated on water quality and quantity modelling promoting specific software such as Aquasys or Flood4Cast and LeakRedux. The latter is a software from a Flemish SME being promoted by Libovito. In so doing VITO and Libovito are actively promoting Flemish cleantech solutions in China. Also other environmental issues are tackled in China by Libovito such as studies on heat island effect or the effects of climate change.

LIU Chang
Chief Scientist and Project Manager
China Academy of Urban Planning and Design

BIO short

Liu Chang, PhD, Senior Urban Planner. Liu Chang has been working as a Chief Scientist and Project Manager at CAUPD since 2017. She has been working as a general manager at Yangtze River Delta Culture and Tourism Research Institute of CAUPD since Aug 2019. She is the executive director of Urban-EU-China Beijing Office; Project director and reviewer of China National Nature Science Foundation (NSFC). She is the second principle investigator of the Horizon 2020 project "URBAN-EU-CHINA" and "TRANS-URBAN-EU-China". She is also the executive director of Intergovernmental International Cooperation Project in Science and Technology Innovation project funded by China Ministry of Science and Technology "Cultural City Construction and Key Technology Research" and "Research in New Technologies of Digital City Planning". She has gained a critical and deep knowledge of the fields of urban development in China and EU through sustained research and collaboration projects.

ABSTRACT

"Smart" and "Green" are the inevitable choices for urban sustainable development. Building an innovation driven and green zero carbon emission city is an important way for countries all over the world to realize the vision of "carbon neutrality". By combing the policies and strategies for the construction of low-carbon cities in China and Europe, taking Xiong'an New Area digital urban planning technology integration platform as an example, this speech expounds the realization path of new technologies to help urban high-quality development, and puts forward some thoughts on the future work of "low-carbon" city development.

FORUM

29th October

Introduction session

3 Parallel sessions

SONG Song
Deputy Director
Division of European Affairs
China Science and Technology Exchange Center
Ministry of Science and Technology, P.R. China

BIO short

SONG Song, serving since October 2009 successively as project officer of the Division of European Affairs of China Science and Technology Exchange Center, Ministry of Science and Technology; attaché and third-rank secretary of the Chinese Embassy in Germany.

Since March 2019, served as deputy director of the Division of European Affairs of China Science and Technology Exchange Center, MOST.

ABSTRACT

Founded in 1982 upon the approval of the State Council, CSTEC is a legally independent organization affiliated to the Ministry of Science and Technology of the People's Republic of China. With expertise in international S&T exchanges, its mandate is to promote interactions between the research and industrial communities in China and their foreign counterparts so as to serve the socio-economic development and enhance the friendly relations between China and countries across the globe.

CSTEC focuses on the following areas: the building and operation of an innovative resources exchange platform, procedure management of the Program on Inter-governmental STI Cooperation Special Program under the National Key R&D Program, introduction of foreign expertise, organizing conferences, exhibitions and training programs, and administration of S&T cooperation and personnel exchange with Hong Kong, Macao and Taiwan. Over the past 39 years, CSTEC has evolved into a professional institution in the field of non-governmental S&T interaction with command of various foreign languages, including English, German, Japanese, French, Russian, Korean, etc. CSTEC has successively established cooperative ties with over 130 organizations and renowned enterprises in more than 30 countries and regions. Thus it has set up a network for collaboration with counterparts from America, Oceania, Europe, Africa, Asia, and in particular the European Union, Japan, Hong Kong, Macao and Taiwan. It continues to play a significant role in facilitating international S&T cooperation and exchanges, the reform and opening-up of China, as well as the construction of the socialist economy.

Sara Medina

Member of the Board, Sociedade Portuguesa de Inovação (SPI), Portugal.
saramedina@spi.pt

Keywords: Business, Innovation, Research, Technology

BIO short

Dr Sara Medina is a Member of the Board of SPI (www.spieurope.eu) and she contributes to the overall management of SPI, being responsible for managing SPI's activities and services in China since 2004 as well as in the Southeast Asian market. She has coordinated projects for public and private sector clients in Europe and around the world, including projects for international organizations in innovation management, technology transfer, R&D and, policy development. She also manages projects funded by the European Commission (EC), the World Bank and Inter-American Development Bank. Dr Medina is an expert and International Committee Member for International Technology Transfer Network (ITTN) in which she promotes international technology transfer and innovation cooperation in China. Dr Medina is an invited expert at the EU SME Centre in China and has provided a series of training seminars on issues regarding the Chinese market

Dr Medina has a Bachelors degree in Food Engineering from the College of Biotechnology in Portugal, a European Masters degree in Food Studies from 5 major European Universities and a Ph.D. degree in Food and Resource Economics from the University of Florida, USA.

ABSTRACT

ENRICH - European Network of Research and Innovation Centres and Hubs, China (china.enrichcentres.eu), offers unique services to European research, technology and business organisations, connecting them to the Chinese market, aiming to trigger all the scientific and technology collaborative potential of the Chinese market for the benefit of European research organisations and technology based companies including start-ups and SMEs and addressing the needs and interests of its European clients in the Chinese market and to maximize the benefits of their activities and presence in China.

Under the ENRICH in China network, the services include tailor-made support and technical assistance based on the specific STI needs and priorities of each organisation in China. ENRICH in China has established a community in different cities of China including Members, Soft-Landing Zones and External Services Providers that represent local support to help the EU innovators to identify opportunities and engage in the Chinese market. Under the current pandemic, ENRICH in China is triggering various types of services in a highly digitally-connected approach to link with STI stakeholders, supporting different types of organisations to accelerate their own transformation. The main objective of the session will be focusing on linking EU innovators to China, facilitating scientific and technological exchanges between EU's representatives and China, and promoting networking opportunities with relevant STI stakeholders in the country.

Session on
“Factories of the Future”

Dirk Torfs
CEO

Flanders Make

BIO short

Dr.ir. Dirk Torfs is CEO of Flanders Make vzw, the Flemish strategic research center for the manufacturing industry. Dirk is a Civil, Mechanical and Electrical Engineer as well as a Doctor in Applied Sciences (KU Leuven). He has over 20 years of experience in management positions in the Flemish industry and is Professor of Quantitative Decision-Making for the Executive MBA programme of the Flanders Business School. . Prior to joining Flanders Make, Dirk has been active for more than 20 years in several industrial companies leading organisations for growth and involved in European Space Agency robotic projects. Dirk further participates in the board of directors of several innovation cluster organisations.

Since 2014 he managed to start up the strategic research center by merging two knowledge centers with selected academic research groups of all 5 universities. He manages the non-profit organisation with 150+ Intra-Muros researchers on the payroll and coordinates about 500 researchers at universities as virtual research organisation. The research center has an industrial relevant strategy for research related to manufacturing, more specifically mechatronic products, vehicles and high mix low volume production. The research center is acting as a circular innovation ecosystems with 170 member companies. It is focusing on industrial impact through a research/technology pull mechanism rather than a research/technology push mechanism. In about 7 years about 300M€ of innovation projects have been defined and started, of which about 10% are infrastructure related projects.

➔ **Co-moderator of the session on "Factories of the Future"**

BI Hai
Principle Investigator
JiHua Laboratory

BIO short

Ji Hua Laboratory, China

Prof. Hai Bi is the principle investigator and the founder of the Germany-China Joint Innovation Laboratory at Ji Hua Laboratory. He completed his B.E. and M.E. degree in Chemistry at Jilin University in 2007 and 2010, respectively, and received his doctoral degree in Physics from Technique University of Munich in 2014. Afterwards, he worked as research assistant at Harvard University (2015-2019). In 2020, he started his work at Ji Hua Laboratory. His research focuses on super-resolution microscopy with near-field enhanced mechanism, organic semiconductors and optoelectronic devices. He is devoted to developing methods and technologies for practical industrial fields, especially for optical detection technique.

ABSTRACT

With great potential for promoting operational productivity, Artificial Intelligence (AI) has attracted enormous technology investment all over the world. However, many companies failed to realize that the thrive of AI requires more than just money. A clearly articulated strategy is an essential starting point—but even that is not sufficient. International cooperation, combining the advantages of different participants, can provide a holistic perspective and is indispensable for AI implementation. As a new form of research institution, Jihua Laboratory can build up a connection between local manufacturing factories and research scientists from both China and Belgium. Successful cooperation between Chinese and Belgium institutes will be established in fields of material science and fermented food. Appropriate governance and supporting infrastructure will be constructed and optimized, and corresponding workforce will be reconfigured and retrained.

ZHOU Guofu
Dean of South China Academy of Advanced Optoelectronics
South China Normal University

BIO short

Professor Guofu Zhou, a National Distinguished Professor at South China Normal University (SCNU), is one of the key inventors of electrophoretic electronic paper display technology worldwide and is the main promoter of this technology from laboratory to market (2004). Professor Zhou has more than 20 years of experience in turning innovations into feasible results in optoelectronic materials and devices. Professor Zhou is the director of National Center for International Research on Green Optoelectronics (IrGO), the director of International Laboratory for Optical Information Technologies of the Ministry of Education and the co-founder and director of Joint Research Laboratory of Liquid Crystals and Photonics Devices (LCPD) at SCNU-Ghent University. Professor Zhou has more than 200 publications in top international journals, more than 100 invited reports and more than 500 patents (59 international authorized patents, 175 Chinese authorized patents). Besides, Professor Zhou presided over more than 20 major international scientific research projects and won more than 20 honors and awards both internationally and domestically, including the Science and Technology Cooperation Award of Guangdong, the 8th Guangdong Patent Gold Award.

ABSTRACT

Green optoelectronic materials have a wide range of applications in future smart cities, which can reduce energy consumption to facilitate carbon neutrality, enhance information interaction and improve viewing comfort. South China Normal University of China and Ghent University of Belgium have carried out in-depth cooperation in the field of green optoelectronic materials and devices for future smart cities. The cooperative research mainly includes reflective display technologies and liquid crystal optoelectronic materials and devices, and the cooperative research yield outstanding achievements. Here this report will introduce the latest research results and their applications in future smart cities.

CHEN Kuan
CEO
Infervision Medical Technology Co., Ltd.

BIO short

Kuan CHEN, founder and President of Infervision, was a Ph.D. candidate pursuing dual doctoral degrees in Economics and Finance at the University of Chicago, where he studied under the guidance of four Nobel Prize winners.

Mr. Chen left his Ph.D. program and began his start-up journey back in China in 2015. With the aspiration to apply deep learning technologies to medical imaging, he founded Infervision in January 2016. In July 2017, Mr. Chen was awarded Forbes China's 30 under 30. In March 2018, he was awarded Forbes Asia's 30 under 30.

Since March 2018, Mr. Chen has been serving as the Vice Chairman of the Medical Artificial Intelligence Specialized Committee of China Association for Medical Devices Industry.

Since April 2018, he has been serving as the Vice Chairman of the Medical Artificial Intelligence Alliance of China Medical Equipment Association, and the Vice Chairman of Chinese Innovative Alliance of Industry, Education, Research and Application of Artificial Intelligence for Medical Imaging.

Since January 2020，he has been serving as a member of the Zhongguancun Science City Expert Advisory Committee.

In November 2020, he has received the top prize at the 8th ceremony of "Contribution Award for Overseas Chinese Community" ("Contribution Award for OC Community") and was selected as a Distinguished expert in the field of biomedicine of China Federation of Returned Overseas Chinese.

Mr. Chen has also applied（patents included in the application） to over 200 patents related to artificial intelligence in China and internationally.

ABSTRACT

In this speech, Mr. Chen Kuan, CEO of Infervision Medical Technology Co., Ltd., will introduce the clinical value of artificial intelligence, talk about how to use artificial intelligence to achieve upgrade and update in the healthcare field, and share the information of InferScholar Centre, the scholar scientific research platform of Infervision Medical Technology Co., Ltd., and its disease management products (Lung cancer and Stroke).

Thibaud van Rooden
Pôle MecaTech, Belgium

Function – international affairs executive
Department – International

BIO of the presentor:

Thibaud van Rooden (M) is heading the International Affairs at MecaTech. Before joining Pôle MecaTech in 2012, he held different positions in Economic development, innovation & cluster management, and business development. At MecaTech, Thibaud van Rooden has been developing the cluster's international strategy through several INTERREG and Horizon 2020 projects, especially on the topic of Factory 4.0/Smart manufacturing (Industrial IoT, Automation, Additive Manufacturing, AI & big Data, Cybersecurity etc.).
Thibaud van Rooden holds a master's degree in economics and Industrial Strategy (2003) from IEP Grenoble, and an Innovation Management Certificate from UCL Louvain (2016).

ABSTRACT of the presentation:
Factory 4.0 Ecosystem in Wallonia & example of IA projects.

Johan Potargent
CEO AMS Belgium BV

Kieleberg 5
Poort Genk 6386
3740 BILZEN
Tel : +32 475 286 682
www.ams-innovation.com

BIO short

Graduated in Ostend Belgium in 1982
MBA – PUC Hasselt Belgium in 1988

General Manager HMZ Belgium (Windmaster) 1993 – 2000
Global management support on companies like Comau, CNH

Started up AMS Automation in 2006
Launched the AMS Robomould Manufacturing Technology (patented globally robotized automated manufacturing system in rotational moulding technology with global footprint in the production of Hydrogen H2 liner tank manufacturing)

ABSTRACT

The industrial landscape is going digital. Connectivity, automation, digitization, robotics, 4.0, IOT,… are technical buzz words but a Factory of the Future is much more than just this.

Factories of the future also think about the environment, use less waste, less energy and less water, manufacture products which come out of recycled materials and will produce "green" products.

So a combination of a "new mindset" which will be encouraged by a global mindset and where technical innovations are needed to achieve the goals.

Companies have to turn themselves into agile, high tech organizations.

So advance manufacturing technologies, integrated engineering, integrated design approach in the complete process from simulate to manufacturing, digitized and connected with the internet, within a human centered organization with local people involvement, so a networked factory with an optimal eco-system, taking care with the product life cycle and disposing waste, and all this within single batches (so 1 product is a series).

AMS has been doing this in quite some companies. From cheese manufacturing into hydrogen tanks and up into the future for micro factories and car manufacturing

Dirk Smeets
CTO

icometrix
3000 Leuven
Belgium
Dirk.Smeets@icometrix.com
+32 16 369000
+32 495 801646

BIO short

Dirk Smeets is the current Chief Technology Officer at icometrix. Trained as a biomedical engineer, he obtained his PhD in medical image analysis in 2012. After joining icometrix he took different roles covering responsibilities in research and development, quality management, information security management, marketing, sales management, and strategic partnerships. Today, he is responsible for bringing new products to the market, demonstrating their clinical value and implementing them to be of value for the icometrix' customers. Although icometrix is primarily focused on brain scan analysis, it developed, together with an international consortium of partners, artificial intelligence software for lung scans to offer its services 'pro bono' during the pandemic. Dirk is currently the principal investigator of this consortium, named icovid.
Besides his role at icometrix, Dirk is also a reviewer for grant proposals from the European commission and is a visiting post-doctoral researcher at AIMS (VUB).

ABSTRACT

In March 2020, the first COVID patients were seen in Europe, causing the largest health crisis in decades. With limited knowledge on how to diagnose and treat COVID patients, universities and companies around the world begin to start to collaborate to find answers. In Belgium we started a collaboration between the universities of Leuven, Brussels and icometrix, to come up with a solution for the analysis of lung scans. Thanks to the collaboration with the university of Wuhan, the first version of the software could be developed rapidly and brought to the hospitals as a CE marked medical device in less than 5 weeks.
The talk of Dirk will highlight the key factors for this success and will also go deeper on how this project has evolved further.

Session on "Life Sciences"

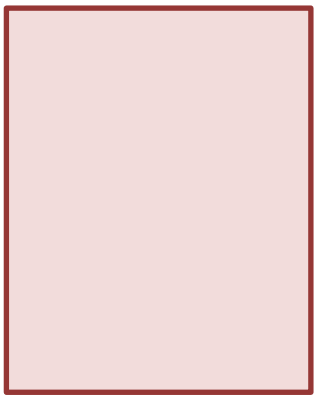
Tineke Van hooland
Deputy Secretary General

bio.be/essenscia
Belgian Life Sciences Industry Association
Blue Point Building
Boulevard Auguste Reyerslaan 80
1030 Brussel/Bruxelles
tvanhooland@essenscia.be
+32478377578

BIO short

Tineke Van hooland is Deputy Secretary General at bio.be, the Belgian federation of companies active in life sciences & biotechnologies, part of essenscia. She is also Chair of the National Associations Council (NAC) at Europabio, the European association for Bioindustries. She graduated with High Distinction as Industrial Pharmacist from Ghent University and has held several mandates and leadership positions in biopharmaceutical companies at corporate level over the past 18 years. She is also founder and CEO of Epic 10, a boutique consulting firm specialised in External Affairs in Life Sciences. Tineke is known for her dynamic and no-nonsense approach. She is also a female leadership advocate and has authored a number of opinion pieces on sustainable health policy and empowering women. Her motto 'Nothing great was ever achieved without enthusiasm" (Emerson).

➔ **Co-moderator of the session on "Life Sciences"**



LUO Yucheng
Director of Service Center
China Belgium Technology Centre

BIO short

Mr. Yucheng LUO (Head of Service Centre, China Belgium Technology Centre)

Mr. Yucheng LUO is graduated from the Liverpool School of Architecture (2004-2009), and being appointed by the University of Liverpool as the Liverpool International Ambassador during his study in the UK (2007-2009).

He was engaged with the massive progress in development of infrastructure in China as an architect (CSADI 2009-2016) before joining the United Investment Group.

Taking the philosophy and methodology learnt from the west and with the practicing experiences of bringing the drawings to buildings, he came to Belgium in autumn 2016 to support on the ignition of CBTC.

During 2016-2020, with the work of his team, CBTC has served more than 100 companies/organizations from both China and Belgium, and a brand-new Smart Valley complex will be ready for use in the coming 2021.

ABSTRACT

As the mutation of the Coronavirus continues, uncertainty due to the difficulties caused by the various aspects of the epidemic continues to affect the established international situation and the way of cooperation.

Discussions about the trend of de-globalization and negative speculations about China based on mistrust are rampant.

However, as a pre-emergency region and one of the few countries where the epidemic is currently stable, China has continued to export various products to different countries to support them in their fight against the epidemic.

It is under this complex background that the innovation and technology cooperation between China and Belgium is celebrating the 50th anniversary of diplomatic relations.

CBTC will share with you some of the stories of cooperation between China and Belgium in the fields of information technology, life sciences, etc.

LIU Xinyong
Head of China-Belgium Collaborative Research Center for Innovative Antiviral Drugs of Shandong Province
Director of Shandong University Innovative Drug Research Center
Director of Department of Medicinal Chemistry
Institution, Department
School of Pharmaceutical Sciences, Shandong University

BIO short

Professor Xinyong Liu is currently working as Distinguished Professor & Dean in Department of Medicinal Chemistry at Shandong University, Jinan, China. In addition, he is the director of the China-Belgium Collaborative Research Center for Innovative Antiviral Drugs of Shandong Province and the director of the Shandong University Innovative Drug Research Center.

Xinyong Liu has acquired Bachelors (1984) and Master (1991) degrees from the School of Pharmaceutical Sciences, Shandong University, Jinan, China. From 1997 to 1999, he worked as a senior visiting scholar at Instituto de Quimica Medica (CSIC) in Spain. In 2004, he obtained his PhD degree from Department of Medicinal Chemistry, Shandong University. In the last 30 years, he has devoted himself to the field of research and development of innovative drugs, especially the rational drug design, synthesis, and antiviral activity evaluation of a variety of novel heterocyclic molecules that interact with specific enzymes and receptors during the viral life cycle, and has been selected as Taishan Scholar Distinguished Professor, Expert Entitled to the State Council Special Allowance, Shandong Provincial Outstanding Medical Academic Talent and Outstanding Science and Technology Worker of Shandong Province. In addition, he was also selected as one of the World's Top 2% Scientists in 2020. He successfully finished more than 10 national major and key projects and published three Chinese monographs, including Research on Anti-AIDS Drugs, Research on Target-based Anti-AIDS Drugs and Preparation and separation technology of organic compounds in laboratory, and several international monographs, such as Antiviral Drug Discovery and Development and Advances in Metallodrugs. He also participated in editing of textbooks Inorganic Chemistry, Inorganic Chemistry Course and Pharmaceutical English as the editor-in-chief or deputy editor-in-chief. Moreover, he has published more than 400 papers in J Med Chem, Chem Soc Rev, Elife and other authoritative journals, and has been continuously selected as the "Most Cited Chinese Researchers" by Thomson Reuters in the past seven years and has been awarded the second class of National S&T Progress and several provincial and ministerial awards. He has been granted more than 70 Chinese invention patents, 4 international invention patents and has cooperated with enterprises to develop several generic drugs. Currently, He has discovered more than 10 drug candidates, and 3 drug candidates are in preclinical development with independent intellectual property.

ABSTRACT

Since the 1990s, Liu Xinyong's research group have had close cooperation in antiviral drug discovery with the Erik De Clercq's research group for nearly 30 years. Their unremitting efforts have made outstanding contributions to antiviral drug research and development. This speech describes the close academic exchanges and cooperation between the two research groups from five parts: the background of the cooperation, the characteristics and task division of the cooperation, the historical process of the cooperation, the representative cooperation achievements and the prospects of future cooperation.

Erik DE CLERCQ

Professor
KU Leuven

HAN Zheng
Deputy Director of Institute of Agro-food Standards and Testing Technology/ Professor
Shanghai Academy of Agricultural Sciences

BIO short

Zheng Han, male, graduated from Zhejiang University as a Ph.D student in 2011, and got his second Ph.D degree from Ghent University in 2016. As the professor and deputy director of the Institute for Agro-food Standards and Testing Technology, Shanghai Academy of Agricultural Sciences, Prof. Zheng Han has been awarded as the Outstanding Young Agricultural Scientist in Ministry of Agriculture and Rural Areas, the Shanghai Youth Top-notch Talent and the Shanghai Minhang Leading Talent. Focusing on the safety and quality of food and agro-food, systematic research has been carried out on the mycotoxins, an important harmful factor in food. As the first or corresponding author, Prof. Zheng Han has published 48 papers on the internationally recognized top-class journals with the total impact factor 242. Among these, 4 papers have been published on the journals with the impact factor higher than 10, and 17 higher than 5. Prof. Zheng Han has been granted 8 national invention patents and 1 utility model patent as the first inventor. He acquired Level II China Agricultural Science and Technology Award (First) and co-acquired level I Science and Technology Award in Jiangsu province (Fourth).

ABSTRACT

Mycotoxins are a series of secondary metabolites produced by various mould species growing on plant-based products either in the field or during storage. They are considered as the most important chronic dietary risk factor, higher than plant toxins, food additives or pesticide residues. Reference materials enable the traceability of results to appropriate measurement standards and are important tools for laboratories during the development of analytical methods, uncertainty measurements and interlaboratory comparisons such as proficiency test and method validation study.

Focusing on reference materials for mycotoxins, the collaborations of Shanghai Academy of Agricultural Sciences (SAAS, China) and Sciensano (CODA-CERVA before 2018) started from September 2012, including: 1) Preparation of reference materials for mycotoxins; 2) Characterization and accurate determination of mycotoxins in reference materials; 3) Organization of proficiency tests; 4) Exchange of scientific researchers; 5) Co-organization of international conferences.

Based on the above collaborations, a total of 13 reference materials for mycotoxins have been successfully prepared and characterized. Based on these reference materials, SAAS and Sciensano co-organized proficiency tests for Asian and Pacific laboratories in 2018 and 2019, respectively. A total of 4 papers have been co-published on the internationally recognized (SCI) journals, and another 3 have been submitted. In recognition of mutual interests and the fruitful achievements, SAAS and Sciensano joined their forces in creating an "International Joint Research Centre of Reference Materials for Mycotoxins", and signed the contract in May 2019. In the next step, SAAS and Sciensano will continue join their efforts on mycotoxin research, to make more contributions on monitoring and control of mycotoxins to ensure food safety.

Marc Dechamps

International Representation
BioWin – The Life Sciences – Health cluster of Wallonia

BIO

Marc Dechamps is a biologist with extensive experience of more than 30 years in the Pharmaceutical industry, with expertise in market development for new products including infectious diseases, immunological disorders, cancer, CNS diseases and vaccines.
Since 2016 Marc has founded XMF consulting to support biotechnological companies in the field of ATMP, Cell& Gene therapies,.. with strategic advising and management leadership. Marc served as Managing Director of Delphi Genetics, interim CEO of eTheRNA Immunotherapies and CXO of BioGenCell Europe… Marc joined BioWin in 2018, the Health Cluster of Wallonia (Belgium) as Director International Affairs. In 2019, Marc was elected at the Board of CEBR, the Council of European BioRegions, and became President in 2020 while ensuring the international representation of BioWin."

ABSTRACT of the presentation:
Wallonia – Belgium is one of the most important and the densest (Bio)pharmaceutical Hub in the center of Europe.

Wallonia has a powerful ecosystem to boost cell & gene therapy products development & manufacturing, from academic excellence to industrial expertise.
The Walloon ecosystem is based on:

- A world-renowned academia
- Local SMEs and start-ups
- An industrial leadership with large multinational companies with strong local anchorage
- Numerous innovative suppliers and service providers with high quality manufacturing facilities

  Wallonia has developed a pro-active talent development policy with the creation of the "European Biotech School" and a dedicated biopharma training centres (Cefochim). Belgium has more graduates in Life Sciences & Health per capita than neighbouring countries and the highest density of researchers in Europe, 30% higher than in the US. Wallonia has strong financial support to innovation in health from the Regional Government. Furthermore, it is reinforced by an interesting and attractive combination of regulatory & tax measures & incentives for biopharma R&D.

  In conclusion, as the Biopharma & Life Sciences valley of Europe, Belgium-Wallonia offers a strong and strategic ecosystem for Cell & Gene therapy, biomanufacturing and Biotech companies.

Reference: "Strengths of the Life Sciences ecosystem in Blegium-Wallonia" – Awex & Biowin – October 2020

Photo

Eric Deconinck

Head of Scientific Service a.i.
Medicines and Health Products
Scientific Direction Chemical and Physical Health Risks
Sciensano

BIO short

Eric Graduated as a pharmacist at the Vrije Universiteit Brussel in 2002 and obtained a PhD degree in analytical chemistry and chemometrics from the same university in 2002. After a two years postdoc at the department of Pharmaco-Technology and Biopharmacy at the Katholieke Universiteit Leuven, he joined the Belgian Official Medicine Control Laboratory (OMCL, part of Sciensano). Here, he was responsible for the analysis of counterfeit medicines and illegal pharmaceutical preparations for the Belgian and the European authorities, before he became the head of the OMCL in 2016.

Characterization and risk identification of falsified medicines and adulterated dietary supplements

Both the increasing occurrence of illegal and substandard medicines and adulterated dietary supplements or traditional medicines represent a treat to global public health.
A recent research project, financed by a scholarship of the Chinese Research Council (2016-2020), focused on the identification of the risks associated with the use of **Illegal antibiotics**. In this project, more than fifty seized samples were evaluated for their chemical, galenic and microbial quality, showing failures for impurity content, dissolution and microbial purity (presence of neurotoxin producing fungi). This project showed clearly that chemical quality of illegal medicines is not enough to evaluate their risk and that a broader characterization of the products is necessary for a correct risk evaluation. In another part of the project an *onsite* infrared based approach was developed for a first quality check of illegal antibiotics at e.g. customs.
The chemical adulteration of dietary supplements is a well-known and well documented problem in literature, but an underestimated problem is the **Herbal adulteration of Plant Food Supplements** (PFS) and herbal or traditional medicines. Our service works on the innovative application of chromatographic fingerprints, combined with chemometrics to detect prohibited or regulated plants in herbal mixtures. In a new project the service is turning towards multi-dimensional fingerprints and mass spectrometry fingerprints in order to augment selectivity and specificity for the detection of targeted plants in mixtures.
It stands to reason that collaborations on these topics would be beneficial for both the European and the Chinese policy makers to tackle this common threat, but also to protect the reputation of the pharmaceutical industry and the Traditional medicines in both regions. These collaborations can go from collaborative PhD projects (financed by one of the respective national bodies) over joint applications for research grants (Belspo, European commission, …) to joint labs and infrastructures, between the respective competent authorities for the development of analytical strategies, risk evaluation, standardisation of analytical methodologies (e.g. common monographs between the respective Pharmacopoeia), etc.

Godelieve Gheysen
Full professor

Head of Department Biotechnology
Department Molecular Biotechnology
Faculty of Bioscience Engineering,
Ghent University
Coupure links 653
B-9000 Gent
Belgium

BIO short

Godelieve Gheysen is senior full professor at the Faculty of BioScience Engineering at Ghent University, where she heads the Department of Biotechnology and she also is director of International Plant Biotechnology Outreach. She conducted her PhD in Sciences on the analysis of plant transformation by Agrobacterium tumefaciens under supervision of Marc Van Montagu at Ghent University. Her expertise is plant molecular biology and biotechnology, including science communication to the public. Her research focuses on the molecular analysis of interactions between plants and pathogens with a focus on nematodes and the use of molecular breeding and biotechnology to improve plant resistance to biotic stress. She is/was promoter of 48 PhD students, published >200 papers, was cited 7500 times, and has an h-index of 51. G. Gheysen is a member of the Royal Flemish Academy of Belgium for Science and the Arts (KVAB) and in 2013 she obtained the Prometheus Award for Research from Ghent University. She teaches Molecular Biology, Cell Biology, Gene Technology, Plant Biotechnology and Molecular Aspects of Plant Nematode Relations.

ABSTRACT

Agricultural production today would not be able to feed the world without the use of plant protection chemicals. A sustainable highly productive agriculture with less pressure on the environment is a necessity but also a challenge, for sure in the light of climate change. Chemical solutions should be replaced by biological solutions. Providing crops with the genes to protect themselves therefore is a no-brainer. Crossing plants with different characteristics due to genetic variation has been instrumental in the generation of improved varieties in the 20th century. Genetic variation has been found in wild relatives or was induced by gamma irradiation. But the source of traits in the wild is limited and irradiation is a brutal technique that causes thousands of random mutations. In contrast, plant genetic engineering was developed in the 80's of last century as a more precise technique with a much larger gene pool to choose from. Instead of combining thousands of (desirable and non-desirable) genes by crossing, genetic engineering selects one or a few valuable genes and introduces these into the plant variety of choice, creating a genetically modified organism (GMO). Thousands of studies and >25 years of field experience have proven that the technology is safe and that GMOs generally have benefits for farmers, public health and environment. The general term GMO covers a wide range of applications. Transgenic cotton (e.g. in China) and eggplant in Bangladesh express a bacterial gene (Bt) that protects them against caterpillar attack. This has drastically reduced insecticide use to the benefit of farmers, consumers and environment. Cisgenic potatoes that are resistant to late blight and thus reduce the need for fungicide applications, contain genes from wild relatives that could also be introduced by breeding, but this would take a much longer time. The most recent addition to genetic engineering techniques is CRISPR that allows gene editing, i.e. making precise changes in the DNA that is present in the genome of the plant. These variations that can be engineered precisely and directly in the genes allow very fast generation of crops that are disease resistant or tolerant to abiotic stress. Despite the discovery of CRISPR only 10 years ago, there are already gene edited crops ready for the market. In conclusion, genetic engineering offers huge opportunities for faster adapting crops to climate change and secure food production.

Danny Geelen
Professor

Department Plants and Crops
Faculty of Bioscience Engineering
Ghent University
Coupure links 653
9000 Gent
Belgium
Tel: +32 9 264 60 76
Cell: +32 479 940252
email: danny.geelen@ugent.be
http://www.horticell.ugent.be/

BIO short

Danny Geelen received a PhD degree in 1995, upon a study of the chemical communication between symbiotic nitrogen fixing rhizobia and leguminous plants. Subsequently, he studied plant ion channels at Gif-Sur-Yvette, France from 1995 to 1997 (CNRS, Institut des Sciences Vegetales) supported by a Marie-Curie fellowship. From 1997 to 1999, he worked on plant hormone signaling (abscisic acid) at the Imperial College London in the UK, supported by a FNRS postdoctoral fellowship. Thereafter he returned to Belgium with a FWO postdoctoral fellowship and was appointed Principal Investigator of the VIB Center for Plant Systems Biology. In 2005 he became professor at the faculty of Bioscience engineering, Ghent University.

Danny Geelen contributes to a range of service activities in the field of plant biotechnology: as co-editor of Plant Cell Tissue Organ Culture, as founder of the Belgian Plant Biotechnology Association, as organizer of an international meetings, as commissioner of ISHS, as member of the European Space Agency consortium MELiSSA, evaluator for scientific commissions (FWO/FNRS) and as board member of the plant biotech organizations CropFit and Agrotopia.
His interest is to bridge the gap between fundamental research and the development of applications in agriculture.

In addition to the cellular and molecular methodology and expertise, he has acquired expertise in growing plants under various conditions, in vitro tissue culture technology (root and shoot induction, propagation, protoplast culture, embryo rescue, somatic embryogenesis, and transformation) and indoor farming, particularly hydroponic cultivation.

ABSTRACT

See the previous page (joint contribution with Prof. Godelieve Gheysen)

Session on
"Smart and Sustainable Cities"

Han Vandevyvere
Senior Researcher | Project Manager

Unit Smart Energy and Built Environment
EnergyVille
VITO NV
EnergyVille I
Thor Park 8310
BE-3600 Genk
+32 14 33 58 68

Associate Professor
Faculty of Architecture and Design |
NTNU – Norwegian University of Science and Technology
NTNU Brussels Office
Norwegian House of Research and Innovation
Rue Guimard/Guimardstraat 9
BE-1040 Brussels

BIO short

Han Vandevyvere is a senior researcher and project manager at VITO-EnergyVille and associate professor of NTNU (Norwegian University of Science and Technology). He does research and manages projects with a focus on the energy transition of the built environment. These mainly include EU funded smart city projects (FP7, Horizon2020), the EU Smart Cities Marketplace and assignments by the Flemish government and by Flemish cities, such as the climate action plans for the cities of Roeselare (2018) and Bruges (2021). He holds a PhD on sustainable urban development and researched and taught sustainable building techniques and sustainable urban design at the engineering faculty of KU Leuven from 2006 to 2013. He served as the scientific coordinator of the city project Leuven Climate Neutral 2030 (2011-2013). Before his full-time scientific occupation he combined research with practicing as an architect, in Belgium and in Spain, allowing him to explore the relation between research and practice in particular.

➔ **Co-moderator of the session on "Smart and Sustainable Cities"**

HUANG Yuping
Researcher
Guangzhou Institute of Energy Conversions,
Chinese Academy of Science

BIO short

Dr. Yuping Huang is a researcher at the Guangzhou Institute of Energy Conversion, Chinese Academy of Science and a professor at the University of Science and Technology of China. She obtained a PhD in Industrial Engineering (2014) at the University of Central University in USA; an MS in Industrial Engineering (2011) at West Virginia University, USA. Her research interests are energy system planning, operations and policy modeling and analysis, decentralized algorithms and their applications in energy system optimization, smart grid and electric vehicle-to-grid management, for electric power groups, integrated energy service companies, industrial organization and governments. She has presided over 9 provincial and international cooperation projects, published 14 academic papers, 2 academic monographs, 12 accepted patents, and 3 software copyrights.

ABSTRACT

Smart green energy systems play an indispensable role in sustainable urban and community development. With the increase of renewable energy in energy supply system, the structure of regional energy system has been constantly improved. Through the promotion of innovative applications of green and low-carbon technologies, building a smart energy network can greatly accelerate the dual goals of energy consumption control and low-carbon development. This presentation will introduce the work and achievements of the Chinese government in the green transformation of energy system, and share three modes, such as the national photovoltaic development pilot scheme, the mobile energy storage (Vehicle-to-Grid, V2G) project and the wind-and-solar powered hydrogen production project for promoting smart green energy system in sustainable cities.

YUAN Yong
Professor/Director
Tongji University

BIO short

Academic activities of Professor Yuan mainly committed to dynamic aspects and serviceability of underground facilities, funded from NSFC and MOST, China. He is actively in the capacity of board member of several professional committees such as Council of Education and Training of International Association of Tunnelling (ITA-CET), Performance and Safety of "*Federation internationale du beton*" (fib), Protective Engineering of Chinese Civil Engineering Society (CCCS), Tunnel Engineering of China Highway and Transportation Society (CHTS). He is also active editorial board member of Engineering Structures, Structural Concrete, and Mechanics in Engineering.

He intensively jointed the projects such as the Tower building of Shanghai Center, immersed tunnel of HZM Linkage, as well as Shanghai Changjiang Tunnel. With continuous and contemporary contribution to the academic society of civil engineering he was elected as TOP 2% scientist by literature researcher, based on Elsevier database. He was also awarded more than ten times for his achievements on scientific and technologic contribution.

ABSTRACT

Aimed at low-carbon with industrialized construction, the joint Laboratory for Industrialized Construction (LIC) explored the innovated technologies of self-compacted concrete, high-performance concrete before, and now smart concrete and 3D printing concrete, some of the technologies and fundamental researches had been applied to the key project such as immersed tunnel of Hongkong-Zhuhai-Macu Linkage and tower building of Shanghai Center. Innovation could contribute more for sustainable construction.

CHEN Jingbo
Associate professor, director assistant of National Engineering Research Center of Remote Sensing Application

Aerospace Information Research Institute, Chinese Academy of Sciences

BIO short

Dr. Jingbo Chen is from Aerospace Information Research Institute (AIR), Chinese Academy of Sciences. He is associate professor and director assistant of National Engineering Research Center of Remote Sensing Application. His research focuses on intelligent interpretation of land-cover/land-use using remote sensing. He was once visiting scholar at the Vrije Universiteit Brussel, and currently is the cooperation coordinator between VUB and AIR.

ABSTRACT

The report firstly introduces Aerospace Information Research Institute, Chinese Academy of Sciences (AIR) and reviews the cooperation history between AIR and Belgium partners including VUB and VITO. Then, sustainable development monitoring related work of AIR is summarized. Some case studies supported by intelligent remote sensing analysis (IRSA), including but not limited to urbanization monitoring and disaster reduction are illustrated. Finally, the report draws the conclusion that IRSA is an important technology for sustainable development monitoring, and problems encountered and future directions are presented.

Somil Miglani
Product Owner for STORM district energy controller,

Flemish Institute for Technological Research (VITO)
Boeretang 200
2400 MOL
Belgium

BIO short

Somil Miglani is the product owner for STORM district energy controller at the Flemish Institute for Technological Research (VITO). He holds a doctorate in algorithmic modeling and optimization of district heating networks and building energy systems from ETH Zurich, Switzerland. He is passionate about making active contributions to advancing the energy transition through innovative technologies. At VITO, he combines his technical prowess in energy systems with business acumen and a customer-oriented approach to bring smart control technology for district heating networks to the market.

ABSTRACT

The STORM district energy controller is VITO's cutting edge technology that uses artificial intelligence and advanced algorithms for optimal and autonomous control of heat networks. This technology is already active on several European heat networks. For the first time, it is implemented and demonstrated on a heat network in China. This demonstration is part of a long-term collaboration between VITO, a leading applied research institute in Belgium, and Runa Smart Equipments Co. Ltd., a prominent district heating network operator in China. The demonstration site is a district heating network located in Taiyuan. The STORM controller was setup to perform peak shaving on the production units by actively controlling 24 multi-apartment building units covering a total heated floor area of 204,000 m2. This presentation describes the practical experience from this demonstration project and its key results. The adaptability of this technology to diverse geographies, network typologies, and local technical infrastructure, due to its data-driven nature is also highlighted. Furthermore, this presentation provides a unique perspective on how this technology was implemented entirely remotely making use of cloud computing technology, a blessing in disguise especially during the pandemic.

Rob Heyman
Coordinator and senior researcher

KENNISCENTRUM DATA & MAATSCHAPPIJ
imec-SMIT
Vrije Universiteit Brussel
Pleinlaan 9, verdieping 2,
1050 Brussel
Belgium
M: +32 477 46 33 63
www.data-en-maatschappij.ai

BIO short

Rob Heyman is coordinator of the Knowledge Centre Data and Society which is part of the Flemish strategic plan on AI. He is a senior researcher at imec-SMIT where he researches participative methods in innovation projects between different stakeholders (legal, civil society, end-users) so that societal, legal and ethical values are integrated during development.

ABSTRACT

The aim of this presentation is to explain the role of the Knowledge Centre Data & Society (KC) in Flanders and European initiatives. The EU is investing in AI ethics and regulation with past initiatives like the GDPR and more recent actions such as Trustworthy AI and the AI regulation. The aim of the KC in Flanders is to provide these ambitious principles with methods.

Why?
The ambitious European vision for AI puts pressure on the AI value network. Flemish organisations that innovate with AI will have to interpret different legal and ethical requirements. An example of a network of organisations is smart cities. Different actors have worked on translating an abstract but universal regulation into their infrastructure. This task was not easy and in some cases defined the scope and pace of innovation. So, the translation from (legal) principles to action will determine the speed of innovation in Europe, and Flanders does not wish to lag. The KC aims to facilitate this translation in a pro-active manner.

How?

Seeing is believing
Much of the work of the KC consists of creating methods that render academic knowledge tangible for an inexperienced audience. An example is the inclusion cards toolkit, which allows immersion into what it means to be digitally excluded via role playing.

Policy prototyping
Experiencing what regulation and policy might mean is necessary to mobilise Flemish SMEs to understand why they need to influence policymaking now. Policy prototyping creates a sense of urgency and concreteness because it simply asks what if the regulation was already in place, what would this mean for your business?

Co-creation
The two examples from above could only create impact if they are created with those who are expected to use these tools to implement AI ethics.

Identify added value
If you look at the work we did with SMIT in City of Things, then you can see that added value is critical. Transparency is important but too abstract unless you can explain why this is important for the project itself.

This talk concludes with the mission of the KC which consists of creating trust and clarity in AI and AI ethics and regulation through the proposed methods where stakeholders become convinced of its value by doing.

Piet Opstaele
innovation 'enablement' manager

Havenbedrijf Antwerpen
Havenhuis
Zaha Hadidplein 1
2030 Antwerpen
Belgium
Piet.Opstaele@portofantwerp.com

BIO short

As innovation 'enablement' manager for the Port Authority, Piet is one of the drivers of the digital transition in the Port of Antwerp. Based on a founded strategy with a pragmatic approach in executing concrete innovation projects, he makes the 'Port of the Future' tangible and leads the development of innovation platforms (e.g. smart shipping, drones) to a smart Port - on which startups, companies, knowledge institutions and other authorities create new value for the Antwerp port ecosystem. As a community builder Piet is board member of The Beacon (AI & IOT community) and champion of the Plug&Play maritime innovation platform.

In the 90's, Piet started at one of the most successful startups in the Benelux – Tele Atlas, a producer of digital geographic data – acquired by TomTom in 2008. Between 2011 and 2014 he managed a consultancy firm and was closely involved in the start-ups in the energy sector. Piet holds 2 masters, in History and Spatial and Urban Planning, post-graduates in energy and environmental management and an MBA International management.

ABSTRACT

Cities and ports are inextricably linked. They strengthen each other in economic, social and cultural developments. In Antwerp, the port became in the last decade a leading smart port, by optimizing the flows of goods and information and ensuring safe and secure operations by using emerging technologies, such as smart cameras, drones and digital twin. And these developments are closely interlinked with the smart city developments on providing a sustainable, healthy and innovative working and living environment.