



南昌航空大學  
NANCHANG HANGKONG UNIVERSITY

# 2022 2nd International Symposium on Biomedical Engineering and Computational Biology (BECB 2022)

## Conference Program

(China Standard Time, GMT +08:00)

**August 13-15, 2022      Online**

[www.becbinfo.com](http://www.becbinfo.com)



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## Join a Meeting & Test

Download the application software: [VooV Meeting](#) (腾讯会议);

- Join the meeting by clicking the accessing link as indicated for each session.
- Join the meeting with the specific VooV Meeting ID indicated for each session:
  1. Click “Join Meeting”;
  2. Verify with your mobile number to enter the meeting room  
(If there is a problem to verify with your mobile number, it is suggested to register a VooV Meeting account first and then join the meeting with the ID).

*(Note: Please have your microphone switched off or turned to silent when the speaker is talking.)*

Information of the meeting for test only:

Time: **August 12, 2022, Friday**

**19:00-22:00 (China Standard Time, GMT +08:00)**

Meeting Room: **BECB 2022 Test Meeting**

Meeting ID: **616-445-949**

Accessing Link: <https://meeting.tencent.com/dm/RUR0YIkmVru4>

## Part I Conference Schedule

August 13, 2022, Saturday

Time	Schedule
BECB Plenary Session VooV Meeting ID: <b>829-377-564</b> Accessing Link: <a href="https://meeting.tencent.com/dm/iHkXmRmL1gT3">https://meeting.tencent.com/dm/iHkXmRmL1gT3</a>	
19:00-19:10	Welcome Speech <i>Prof. Cihui Yang, Nanchang Hangkong University, China</i> <i>Prof. Shiping Wen, University of Technology Sydney, Australia</i> Chair: <i>Prof. Cihui Yang, Nanchang Hangkong University, China</i>
19:10-20:00	Plenary Speech 1 <i>Neurological Outcomes of Traumatic Spinal Cord Injuries with and without intervention on the Injured Spine</i> <i>Prof. W S El Masri, Keele University, UK</i>
20:00-20:40	Plenary Speech 2 <i>Design of Event-based Devices for Bioengineered Implementations</i> <i>Prof. Bernard P. Zeigler, University of Arizona, USA</i>

August 14, 2022, Sunday

Time	Schedule
09:00-12:00	BECB 2022_Oral Session 1 VooV Meeting ID: <b>273-884-028</b> Accessing Link: <a href="https://meeting.tencent.com/dm/rcTes9kowb7x">https://meeting.tencent.com/dm/rcTes9kowb7x</a>
<b>Break Time</b>	
19:00-22:00	BECB 2022_Oral Session 2 VooV Meeting ID: <b>262-725-552</b> Accessing Link: <a href="https://meeting.tencent.com/dm/2rEYiXofmgmW">https://meeting.tencent.com/dm/2rEYiXofmgmW</a>

August 15, 2022, Monday

Time	Schedule
09:00-12:00	BECB 2022_Oral Session 3 VooV Meeting ID: <b>542-430-760</b> Accessing Link: <a href="https://meeting.tencent.com/dm/4jPXs6qclgnT">https://meeting.tencent.com/dm/4jPXs6qclgnT</a>

## Part II Plenary Speeches

### Plenary Speech 1: Neurological Outcomes of Traumatic Spinal Cord Injury With and Without intervention on the Injured Spine



**Speaker: Prof. Prof W S El Masri** FCCS Ed, FRCP  
Clinical Professor of Spinal Injuries Keele University  
Emeritus Consultant Surgeon in Spinal Injuries  
Robert Jones & Agnes Hunt Orthopaedic Hospital - Oswestry  
Past Chairman of BASCIS  
Past President of International Spinal Cord Society (ISCoS)

**Short Biography:** Prof El Masri is Hon. Clinical Professor in spinal injuries Keele University and Emeritus Consultant Surgeon in Spinal Injuries. He trained between 1971 & 1982 with Sir Ludwig Guttman and Dr Hans Frankel in the field of spinal injuries (SI) at Stoke Mandeville Hospital and the allied surgical specialties in the Oxford Group of hospitals, Guys hospital, and the USA. He obtained the first accreditation in Spinal Injuries and General Surgery by the RCS in 1982. WEM was appointed Consultant Surgeon in Spinal Injuries at MCSI of the RJA, Oswestry in 1983. He personally treated about 10,000 patients with SI in the acute, subacute and rehabilitation phases and provided lifelong monitoring and care for his patients. He published over 145 manuscripts including on the discrepancy between the radiological and neurological presentations and outcomes. He is the author of the Concepts of Physiological Instability of the Spinal Cord & Time related Biomechanical Instability. He published regularly on the discrepancy of treatment. WEM lectured worldwide, is past President of the International Spinal Cord Society, Past Chairman of BASCIS, founder member of the SPIRIT and TRANSHOUSE/ETHOS Charities.

He received a number of awards including: the Medal of the International Spinal Cord Society, National Hospital Doctor Team Award for Innovation, the prestigious Outstanding Achievement award from the Chinese Society of Spinal Injuries, Outstanding Consultant Achievement award by the Spinal Injury Association, Hon. Presidency of the Romanian Spinal Cord Society, the Paul Harris Fellowship of the Rotary Club.

WEM's concepts and support for evidence based clinical management as well as the right of patients to make a fully **informed choice** between the various methods of management of the spinal injury, and its effects supported by the evidenced advantages, limitations and hazard of each method of management are internationally recognized. He is also a strong advocate for the management of the injured patient spine with all the effects of cord damage in fit for purpose Centres with appropriate infrastructure and resources that enable all medical and non-medical needs of the patient being met in a reasonable and affordable cost. These views have been expressed in his various publications and in particular his publication in the journal "Trauma" which can be accessed free of charge from: <http://journals.sagepub.com/eprint/V9qda2SDWRT7fEMYttqF/full>  
Full CV can be obtained on request.

**Abstract of the speech:** The effects of a Traumatic Spinal Cord Injury (TSCI) are wide ranging with significant implications on the medical, physical, psychological, social, financial, vocational,

environmental condition on the patient, partner and family members. The combination of consequent generalised physiological impairment, multi-system physiological impairment and malfunction, sensory impairment and multiple disabilities, present challenges to clinicians that could not be met for thousands of years. Prior to the 2<sup>nd</sup> World War, the majority of patients died from potential complications, which the medical profession could not anticipate, diagnose or adequately manage

Following the demonstration by Guttman in the UK and Munro in the USA that most patients who are adequately managed on physiological basis survive and many develop some spontaneous neurological recovery following injury, a great interest was taken by the International Community of Clinicians dedicated to the management of TSCI. In the middle of the 1960 Frankel et al made an astute observation that sparing of long sensory tracts or sensory-motor tracts early following injury is invariably followed by spontaneous motor recovery provided no further damage is inflicted onto the Spinal Cord by the management of the injured spine and the effects of SCI.

This observation was confirmed and published following the study in 612 patients treated at Stoke Mandeville hospital and further confirmed and published by almost all members of the international community dedicated to management of patients with SCI. Since 1969 the observation became the basis of the Frankel Classification and was adopted by the international community of clinicians dedicated to the field of SCI as full time or part time clinicians dedicated to one aspect of management of a specific effect of cord damage. Patients were classified in five groups at presentation and at follow up: Frankel A Group (Complete Injuries) are patients with possible sensory sparing at the site of the injury and for the adjacent three segments subsequently known as the Zone of Partial Preservation (ZPP) but not below); Frankel B (incomplete injury: sensory sparing but no motor sparing below the ZPP; Frankel C (incomplete injuries): sensory and motor sparing below the ZPP but the motor power so minimal that it cannot generate movement in the lower limb; Frankel D (incomplete injuries) in which the motor power is strong enough below the level of injury to generated movement which many patients can use to stand and walk; Frankel E group consist of patients with no loss of sensation, weakness of motor power or problems with sphincter functions.

Since then, a further observation by the presented was made about the better neurological outcome following preservation of pin prick sensory sparing than preservation of posterior columns and to and analgesic response to pin prick testing.

What was equally astute and interesting was the observation that neurological recovery occurs irrespective of the severity of the radiological presentation of the injury on admission and at follow up confirming that the force that damages the spinal axis loses energy by the time it reached the spinal cord and depending on the force that reaches the spinal cord the degree of damage to the spinal cord and sparing of long tracts is determined.

Long tracts sparing however is not the only determinant of the neuro-functional outcomes in general and recovery in particular. Neurological recovery is also dependent on the quality of protection of the spared long tracts of an injured and Physiologically Unstable spinal cord from further mechanical and non-mechanical damage.

Non-mechanical damage is inflicted on the injured cord by systemic complications such as severe hypotension, hypoxia, hypothermia, generalised sepsis, significant electrolyte imbalance. These complications can easily develop because of the impaired physiology of the various systems of the body and multi-system malfunction and can result in neurological deterioration, delays of neurological recover or prevention of recovery altogether. Patients are particularly vulnerable to such neurological shortcomings during the stage of neurogenic shock and spinal (shock) and until the reflex activity fully return.

The spontaneous neurological outcomes of various densities of cord damage following adequate Active Physiological Conservative Management of the spine together with the systemic effects of cord injury and the various interventions on the injured spine, their indications, limitations and hazards as well as the hazards to the cord by intervention management immediately before, during or after the intervention will be demonstrated.

The various interventions on the injured spine, their indications and limitations will be discussed.

## Plenary Speech 2: Design of Event-based Devices for Bioengineered Implementations



### **Speaker: Prof. Bernard P. Zeigler**

Professor Emeritus, Department of Electrical and Computer Engineering, University of Arizona, USA

Chief Scientist, RTSync Corp, Arizona, USA

**Short Biography:** Dr. Bernard P. Zeigler is Professor Emeritus of Electrical and Computer Engineering at the University of Arizona and the Chief Scientist at RTSync Corp (rtsync.com). He received a B.Eng. Physics from McGill, M.S. from MIT, and Ph.D. from the University of Michigan (1968). Prof. Zeigler is best known for his theoretical work concerning modeling and simulation based on systems theory and the Discrete Event Systems Specification (DEVS) formalism which he invented in 1976. His book “Theory of Modeling and Simulation” has become a classic in the field. At RTSync, a spinoff company from the Arizona Center for Integrative Modeling and Simulation which he co-founded, he helps to apply modeling and simulation methodology and supporting software to defense and healthcare systems of systems. Also occupying his attention is the development of the Modeling and Simulation Body of Knowledge (<https://scs.org/body-of-knowledge-archive/>). His Wikipedia page is [https://en.wikipedia.org/wiki/Bernard\\_P.\\_Zeigler](https://en.wikipedia.org/wiki/Bernard_P._Zeigler).

**Abstract of the speech:** Simulation has proven to be a widely used tool for computational experimentation with a view to developing and implementing intelligent system designs. The Discrete Event System Specification (DEVS) formalism supports generic open architectures that incorporate multiple engineering domains within integrated cyberphysical system designs. Here we discuss a methodology to define event-based building blocks and architectural patterns for design of smart devices that are inherently fast reacting and low energy consumers. We show how such designs open the universe of possibilities beyond current neuromorphic implementations in silicon hardware to set the groundwork for alternative bio-engineered realizations as they become available.

## Part III Oral Presentations

### Online Live Presentation

- Online live presentations will be conducted via [VooV Meeting](#).
- The duration of each invited speech is 25 minutes, including 1-3 minutes of Q&A.
- The duration of each regular oral presentation is 15 minutes, including 1-3 minutes of Q&A.
- All presenters are requested to reach the Online Session Room prior to the schedule time and complete their presentation on time.
- The time of all the presentations is shown in China Standard Time (UTC +8:00).
- If a presenter cannot show up on time or have problems with internet connect, the session chair has the right to rearrange his/her presentation, and let the next presentation start.

### Pre-recorded Video Presentation

- A pre-recorded video file (in .MP4 format) is required and the duration of each video is 15 minutes. Please make the video record and send it to the Organizing Committee in advance.
- Videos will be played by the Organizing Committee.
- The audience may contact the presenter directly via email for questions and discussions after viewing the video.

### Oral Session\_1

**Time:** August 14, 2022, Sunday, 09:00--

**VooV Meeting ID:** 273-884-028

**Accessing Link:** <https://meeting.tencent.com/dm/rcTes9kowb7x>

**Session Chair:** Dr. Chaity Banerjee Mukherjee, University of Alabama in Huntsville (UAH), USA

Time	Paper ID	Paper Title & Presenter
09:00-09:25	BECB-MS-1272 (Invited Talk)	<a href="#">Is antimicrobial susceptibility testing more reliable by phenotypic or genetic approaches?</a> <i>Kiro Petrovski, University of Adelaide, Australia</i>
09:25-09:50	BECB-MS-1322 (Invited Talk)	<a href="#">Taxonomy conservation matrixes</a> <i>Nawar Malhis, University of British Columbia, Canada</i>
09:50-10:05	BECB-MS-1323 (Invited Talk)	<a href="#">Segmentation by classification: A novel and reliable approach for semi-automatic selection of HIV/SIV envelope spikes</a> <i>Chaity Banerjee Mukherjee, University of Alabama in Huntsville (UAH), USA</i>
10:05-10:20	BECB-MS-1280	<a href="#">Understanding ceramic deposition by cold gas spray: a way to build up biocompatible coatings</a> <i>John Dairo Henao Penenrey, CONACYT, Mexico</i>
10:20-10:35	Short Break	
10:35-10:50	BECB-MS-1315	<a href="#">Selenium yeast attenuates deltamethrin-provoked cerebrum injury via activation of the GPX4/TLR4 signaling pathway</a> <i>Biqi Han, Northeast Agricultural University, China</i>



10:50-11:05	BECB-MS-1317	Activation of the Sirt1/Pgc-1 $\alpha$ /Nrf2 pathway participates in the alleviation of melatonin on chromium-provoked lung injury <i>Jiayi Li, Northeast Agricultural University, China</i>
11:05-11:20	BECB-MS-1318	Mitochondrial dynamics disorder and oxidative stress of kidney induced by mercuric chloride exposure involved in Sirt1/Pgc-1 $\alpha$ signaling pathway <i>Siyu Li, Northeast Agricultural University, China</i>
11:20-11:35	BECB-MS-1252	Chinese Medical Text Classification with RoBERTa <i>Fengquan Cai, Guangzhou University of Chinese Medicine, China</i>
11:35-11:50	BECB-MS-1236 (Invited Talk)	DNA nanotechnology for modulating the growth and development of neurons <i>Mirza Muhammad Faran Ashraf Baig, The Hong Kong University of Science and Technology, China</i>
11:50-12:05	BECB-MS-1355	Neuroscience, neuroaesthetics, semiotics and effective communication of COVID-19 warning information <i>Neil G Muggleton, National Central University</i>

## Oral Session\_2

**Time:** August 14, 2022, Sunday, 19:00--

**VooV Meeting ID:** 262-725-552

**Accessing Link:** <https://meeting.tencent.com/dm/2rEYiXofmgmW>

**Session Chair:** Dr. Linhao Zhao, University of Technology Sydney, Australia

Time	Paper ID	Paper Title & Presenter
19:00-19:25	BECB-MS-1303 (Invited Talk)	Therapeutic application of mesenchymal stromal cells in COVID-19: Promising evidence from in vitro results <i>Panagiotis Mallis, Hellenic Cord Blood Bank, Biomedical Research Foundation Academy of Athens, Greece</i>
19:25-19:50	BECB-MS-1304 (Invited Talk)	Spirooxindoles: next generation for the P53-MDM2 protein-protein interaction inhibitors <i>Assem Barakat, King Saud University, Saudi Arabia</i>
19:50-20:15	BECB-MS-1312 (Invited Talk)	Theory of catalytic and thermoresponsive micro- and nanomotors: From self-propulsion mechanisms to biomedical engineering <i>Vladimir M. Fomin, Leibniz IFW Dresden, Germany</i>
20:15-20:30	BECB-MS-1333	Novel 1,3,4-Oxadiazole chalcogen analogues as potent tumors growth inhibitors <i>Stefano Zoroddu, University of Sassari, Italy</i>
20:30-20:45	Short Break	
20:45-21:00	BECB-MS-1334	Designing the novel agonist leads from biopeptides and endogenous ligands <i>Shubham Vishnoi, University of Limerick, Ireland</i>

21:00-21:15	BECB-MS-1336	The Importance of Prognostic Variables to Monitoring Heart Failure Using Health Management Systems <i>Alexandre Davi Santos Dias, Federal University of ABC, Brazil</i>
21:15-21:30	BECB-MS-1340	Small Animal PET Imaging: Towards an imaging analysis approach for system average performance conclusion <i>Karali Evi, University of West Attica, Greece</i>
21:30-21:45	BECB-MS-1292	Multi-agent neural-like models for the integration of multimodal medical examination data <i>Zalimkhan Nageev, The Kabardino-Balkarian Scientific Center of Russian Academy of Sciences, Russia</i>
21:45-22:00	BECB-MS-1351	Real-time contactless breathing monitoring system using radar with web server <i>Alcides Bernardo Tello, Universidad Nacional Hermilio Valdizan, and Universidad de Huanuco, Peru</i>

### Oral Session\_3

**Time:** August 15, 2022, Monday, 09:00--

**VooV Meeting ID:** 542-430-760

**Accessing Link:** <https://meeting.tencent.com/dm/4jPXs6qclgnT>

Time	Paper ID	Paper Title & Presenter
09:00-09:15	BECB-MS-1247 (Invited/Video)	Current advances in Phosphotyrosine Binding (PTB) Domains: A bioinformatics view of the interaction between PTB and NpXY motifs <i>Jun Zhang, Texas Tech University Health Sciences Center - El Paso, USA</i>
09:15-09:30	BECB-MS-1255 (Invited/Video)	The brain activity of the bilingual code-switching communication <i>Petr Gorbunov, Institute of Applied and Mathematical Linguistics, Moscow State Linguistic, Russia</i>
09:30-09:45	BECB-MS-1274 (Invited/Video)	Disease network-based artificial intelligence elucidates factors in melanoma prognosis <i>Xin Lai, University Hospital of Erlangen, Germany</i>
09:45-10:00	BECB-MS-1313 (Invited/Video)	Open abdomen and negative pressure wound therapy for acute peritonitis especially in the presence of anastomoses and ostomies <i>Orestis Ioannidis, Aristotle University of Thessaloniki, Greece</i>
10:00-10:15	BECB-MS-1261 (Video)	RPMDS: Combining Ramachandran Plot and Molecular Dynamics Simulation for structural-based variant classification: using TP53 variants as model <i>Benjamin Tam, University of Macau, China</i>
10:15-10:30	BECB-MS-1270 (Video)	A symbolic regression approach to hepatocellular carcinoma diagnosis using hypermethylated CpG islands in circulating cell-free DNA <i>Rushank Goyal, Betsos, India</i>

10:30-10:45	BECB-MS-1321 (Video)	<a href="#">Multifunctional phenotyping of bacteria by digital holotomography and Kelvin probe microscopy: A new approach for multipurpose diagnostics</a> <i>Aleksandra Pietrowska, Wroclaw University of Science and Technology, Poland</i>
10:45-11:00	BECB-MS-1324 (Video)	<a href="#">Comparison of the effectiveness of medications containing a combination of zinc and arginine for treatment of male infertility</a> <i>Oleg Zhukov, RUDN University, Russia</i>
11:00-11:15	BECB-MS-1341 (Video)	<a href="#">Microanatomy of left bundle branch in Chinese adult hearts: Aiming to the research on morphological information</a> <i>Ting Li, Hangzhou Medical College, China</i>
11:15-11:30	BECB-MS-1251 (Video)	<a href="#">Whole-genome sequencing and target validation analysis of Mullerian adenosarcoma: A tumor with complex but specific genetic alterations</a> <i>Yanli Ban, Qilu Hospital, Shandong University, China</i>

## Part IV Poster Presentations

**Presentation Link:** <https://www.becbinfo.com/#/listofeposters>

Paper ID	Paper Title & Presenter
BECB-MS-1243	<a href="#">Assessing the incoming raw materials process in an industrial poultry carcasses and giblets packaging unit – A case study</a> <i>Ana Rita Henriques, University of Lisbon, Portugal</i>
BECB-MS-1310	<a href="#">AcrPred: Predicting Anti-CRISPR proteins using two-step model fusion strategy</a> <i>Fuying Dao, University of Electronic Science and Technology of China</i>
BECB-MS-1338	<a href="#">Three-dimensional model of cerebral artery based on medical image</a> <i>Zhengmin Gu, The First Hospital of China Medical University, China</i>

## Part VI Acknowledgements

On behalf of the Organizing Committee of BECB 2022, we would like to take this opportunity to express our sincere thanks to the support and contributions of participants from all over the world. We would also like to express our sincere acknowledgements to the Technical Program Committee members who have given their professional guidance and valuable advice to the conference. Below are the lists of the Technical Program Committee members. For those who contribute to the success of the conference organization without listing the name here, we would like to say thanks as well.

### General Chairs

Dr. Quan Zou, Professor, University of Electronic Science and Technology of China, China

Dr. Shiping Wen, Professor, University of Technology Sydney, Australia

Dr. Qishen Li, A/Professor, Nanchang Hangkong University, China

Dr. Cihui Yang, A/Professor, Nanchang Hangkong University, China

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Dr. Ziyang Sun, A/Professor, Huazhong University of Science and Technology, China  
Dr. Gwanggil Jeon, Professor, Incheon National University, Korea

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