GUEST FACULTIES

The Organising Committee would like to thank the following guest faculties for their invaluable contributions to the 29th Annual Scientific Meeting

Edward F CHANG, MD
Joan and Sanford Weill Chair and Jeanne Robertson Distinguished Professor of Neurological Surgery
University of California, San Francisco, USA

Alok SHARAN, MD
Director for Spine and Orthopedics, New Jersey Spine and Wellness, USA

Jin Woo CHANG, MD, PhD
Professor, Department of Neurosurgery
Director of Brain Research Institute
Yonsei University College of Medicine,
Seoul, South Korea

Nader HEJRATI, MD
Fellow, University of Toronto, Canada

Kai J MILLER, MD, PhD
Assistant Professor of Neurosurgery
Mayo Clinic Rochester, USA

John THUNDYIL, MD, PhD
Associate Medical Director for Medical Affairs for Asia, Abbott Core Diagnostics

Raymond P ONDERS, MD, FACS
Margaret and Walter Remen Chair of Surgical Innovation
Director of Minimally Invasive Surgery, University Hospitals Cleveland Medical Center
Professor of Surgery
Case Western Reserve University School of Medicine, Cleveland, Ohio, USA

Raymond Kai-yu TONG, PhD
Professor and Chairman, Department of Biomedical Engineering
The Chinese University of Hong Kong

Gabriel WONG, MD, FACS
Advocare ENT Specialty Center, Marlton, New Jersey, USA

Thomas Kup-sze CHOI, PhD
Professor and Director of the Centre for Smart Health
Hong Kong Polytechnic University

Takaomi TAIRA, MD, PhD
Special Adjunct Professor, Hyogo Medical University, Hyogo, Japan

Leanne CHAN, PhD
Associate Professor, Department of Electrical Engineering
The City University of Hong Kong

GUEST FACULTIES

Prof. Edward F CHANG, MD

Joan and Sanford Weill Chair and Jeanne Robertson Distinguished Professor of Neurological Surgery
University of California, San Francisco, USA

Edward Chang is the Joan and Sanford Weill Chair and Jeanne Robertson Distinguished Professor of Neurological Surgery at the University of California, San Francisco.

Dr. Chang's clinical expertise is surgical therapies for epilepsy, pain, and brain tumors. He specializes in advanced neurophysiologic brain mapping methods, including awake speech and motor mapping, to safely perform neurosurgical procedures in eloquent areas of the brain.

His research focuses on the discovery of cortical mechanisms of high-order neurological function in humans. Dr. Chang's laboratory has demonstrated the detailed functional organization of the human speech cortex and has translated those discoveries towards the development of a speech neuroprosthetic device to restore communication for people living with paralysis.

Dr. Chang is the 2015 Blavatnik National Laureate in Life Sciences and was elected to the National Academy of Medicine.

GUEST FACULTIES

Prof. Jin Woo CHANG, MD, PhD

Professor, Department of Neurosurgery
Director of Brain Research Institute
Yonsei University College of Medicine, Seoul, South Korea

Dr. Chang graduated from Yonsei University College of Medicine in 1983 (Licence No. 25235) No. He completed his neurosurgical residency (Certification No. 562) and fellowship for stereotactic & functional neurosurgery at Severance Hospital, Yonsei University in Seoul, Korea.

Dr. Chang specializes in stereotactic & functional neurosurgery and his main interest is the neuromodulation of the central nervous system with new innovative techniques (electrical stimulation, focused ultrasound and etc).

As a leading pioneer in the field of stereotactic and functional neurosurgery, which is closely related to the rapidly developing field of neuroscience, Dr. Chang has laid the foundation for clinical research for stereotactic & functional neurosurgery in Korea. He is known to have adopted and introduced various cutting-edge techniques in Korea for the first time, such as radiofrequency cingulotomy for obsessive compulsive disorders (OCD) in 1998, and Deep Brain Stimulation (DBS) techniques for the treatment of chronic neurological disorders such as Parkinson's disease (PD) and essential tremor (ET) in 2000.

Dr. Chang also participated for innovative clinical research of MRI-Guided Focused Ultrasound Surgery (MRgFUS) from the primary stage to the treatment of various conditions such as Parkinson's disease, obsessive-compulsive disorder(OCD), and depression. Through his continued research in this technique, he has contributed more than any other person to the wide adoption and understanding of MRgFUS around the world by the suggestion of the special guideline for selecting the optimal candidates of MRgFUS lesioning procedure.

Because of these contributions, he received the William and Francis Fry Honorary Award at the 2021 ISTU meeting.

Since 1993, Dr. Chang has published more than 270 academic papers in SCI(E) journals around the world.

He has been selected as the co-author of prominent neurosurgery textbooks more than 8 times, and he has authored countless domestic papers and textbooks.

Currently Dr. Chang serves as a section editor of World Neurosurgery which is an official journal of World Federation of Neurological Surgeons (WFNS). He is also a member of the editorial board for the official journal of World Society for Stereotactic & Functional Neurosurgery (WSSFN) as well as the official journal of the International Neuromodulation Society (INS).

In addition to his various editorial duties, Dr. Chang served as the president of many domestic academic societies such as Korean Society for Stereotactic & Functional Neurosurgery (KSSFN), Korean Society for Therapeutic Ultrasound (KSTU) and Korean Neurosurgical Society (KNS). And he was serving as the president of World Society for Stereotactic & Functional Neurosurgery (WSSFN) from 2019 to 2022.

GUEST FACULTIES

Prof. Kai J MILLER, MD, PhD

Assistant Professor of Neurosurgery
Mayo Clinic Rochester, USA

I have a passion for human brain circuit dynamics and a dream of translating scientific understanding to clinical reality. My project is to measure from distributed motor circuitry in the human brain by implanting many brain areas and synthesizing electrophysiology from several operative contexts into a common framework for interpretation in an empirically-driven neurophysiological model. Through my diverse training and ongoing research, I developed expertise as a computational neuroscientist developing measurements and models of human motor systems. In parallel with my computational work, I also trained as a neurosurgeon. Upon completion of my clinical training, I joined the Neurosurgery staff at Mayo Clinic in 2019, with adjunct appointments in physiology & biomedical engineering, and pediatrics. My sub-specialty focuses are epilepsy, deep-brain stimulation, and tumor resection in children and adults: this project will draw from all of these contexts, and the insight may benefit them all. My lab, the Cybernetics and Motor Physiology Laboratory, emphasizes basic human neurophysiology and clinical translation for cybernetics, epilepsy and functional neurosurgery. Our goal is to create new devices to 1) control cybernetic prostheses, 2) induce brain plasticity after injury, and 3) intervene with distributed circuits in movement dysfunction.

a. Miller, KJ, 2019, A Library of Human Electrocorticographic Data and Analyses, Nature Human Behavior, 3; 1225–1235, PMID31451738
b. Miller, K.J., et. al., 2010 Cortical Activity During Motor Movement, Motor Imagery, and Imagery-Based Online Feedback, PNAS 107(9)4430-4435, PMC2840149
c. Miller, K.J., et. al., 2007. Spectral Changes in Cortical Surface Potentials during Motor Movement, Journal of Neuroscience, 27(9):2424–2432, PMC6673496
d. Miller, K.J., et. al., 2012, Human motor cortical activity is selectively phase-entrained on underlying rhythms, PLoS Computational Biology 8 (9), e1002655, PMC3435268

GUEST FACULTIES

Prof. Raymond P ONDERS, MD, FACS

Margaret and Walter Remen Chair of Surgical Innovation
Director of Minimally Invasive Surgery, University Hospitals Cleveland Medical Center
Professor of Surgery
Case Western Reserve University School of Medicine, Cleveland, Ohio, USA

Dr Raymond P. Onders is Professor of Surgery at University Hospitals Cleveland Medical Center and Case Western Reserve University School of Medicine in Cleveland, Ohio. He is honored with the Walter and Margaret Remen Chair of Surgical Innovation. Over the last 25 years, he has focused his research efforts on ways to help people breathe naturally using their own diaphragm. He has authored multiple publications and book chapters on the primary muscle of breathing –the diaphragm. He has trained surgeons around the world on the technique of diaphragm pacing to allow patients freedom from tracheostomy mechanical ventilation.

Diaphragm pacing, electrical stimulation of the diaphragm muscle, is a technology aimed at either replacing or delaying the need for mechanical ventilation or maintaining and improving normal breathing. One of his first research subjects was the late Christopher Reeve (Superman). Diaphragm pacing technology was recognized as one of the most important medical innovations at the 6th Medical Innovation Summit. His advancements in the technology of pacing the diaphragm have led to multiple patents. He co-founded the medical device company Synapse Biomedical which helped to bring this technology to patients.

He has given invited lectures around the world and presented his research at numerous scientific meetings. He has helped spread this knowledge training surgeons to do the diaphragm pacing operation in over 30 countries which has helped countless patients worldwide. His present research focuses on using diaphragm pacing to shorten the time to wean from a ventilator on all intensive care unit patients which is one of the largest health care expenditures in the United States. With the possibility of a shortage of ventilators early in the COVID-19 pandemic, he worked and obtained emergency use authorization by the FDA of the new temporary pacing system in April of 2020. This has led to multiple new applications of the use of temporary diaphragm pacing wires to decrease ventilator times significantly in high risk cardiac patients and lung transplant patients.

He earned his M.D. at Northeastern Ohio Universities College of Medicine in 1988, and in 2010 he received the Distinguished Alumni Award, its highest honor, for his work in advancing medicine. Dr. Onders joined the University Hospitals staff in 1997, following his service with the military where he was a Major in the United States Air Force. From 2015 to 2017, he was interim Chairman Department of Surgery and Surgeon-in-Chief at University Hospitals Case Medical Center and Case Western Reserve University School of Medicine. He also managed for 8 years until 2022 the general surgical and trauma service line at 16 hospitals in the University Hospitals System across northern Ohio. He is active in many medical and surgical organizations and has been President of Midwest Surgical Association and Cleveland Surgical along with being on the Board of several large surgical organizations. He was inducted as a fellow in the American Spinal Injury Association in 2019. Among his multiple other honors, include the Maurice Saltzman Award presented on behalf of the Mount Sinai Health Care Foundation, Crain's Cleveland Business 2008 Health Care Heroes for Advancements in Health, the Rescuer of Humanity Award presented by Values in Action Foundation, and the ALS Association's Bob Feller Legacy Award in 2013 for his work with Lou Gehrig's disease.

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Prof. Gabriel WONG, MD, FACS

Advocare ENT Specialty Center, Marlton, New Jersey, USA

Dual board-certified otolaryngologist and sleep medicine physician practicing at Advocare ENT Specialty Center in South Jersey since 2005. Provides comprehensive treatment for adult and pediatric disorders of the head & neck with specialization in thyroid & parathyroid surgery and obstructive sleep apnea.

Prof. Takaomi TAIRA, MD, PhD

Special Adjunct Professor, Hyogo Medical University, Hyogo, Japan
Adjunctive Professor, Airlangga University, Surabaya, Indonesia
Advisor, Kumagaya General Hospital
Past President, World Society for Stereotactic and Functional Neurosurgery
Past President, Japan Society for Stereotactic and Functional Neurosurgery
Past Chairman, Stereotactic and Functional Neurosurgery Committee, World Federation of Neurosurgical Societies

Positions

2022	Retired from Tokyo Women's Medical University
	Special Adjunct Professor, Hyogo Medical University
	Advisor, Kumagaya General Hospital, Saitama, Japan
2021	Adjunctive Professor, Airlangga University, Surabaya, Indonesia
1999-2022	Director of functional neurosurgery, Department of Neurosurgery, Tokyo Women's Medical University
1996	Ph.D. from Tokyo Women's Medical University
1992-1998	Clinical instructor, Department of Neurosurgery, Tokyo Women's Medical University
1991-1992	Research fellow, Department of Neurosurgery, University of Amsterdam, Amsterdam, The Netherlands (Professor Andries Bosch)
1988-1989	Registrar in neurosurgery, Department of Neurosurgery, University of Birmingham, Birmingham, UK (Professor Edward Hitchcock)
1982-1988	Resident in neurosurgery, Tokyo Women's Medical University

Education

1988	Board certification, Japanese Society of Neurosurgery
1982	Graduated from Kobe University, School of Medicine, M.D.

GUEST FACULTIES

Prof. Alok SHARAN, MD

Director for Spine and Orthopedics, New Jersey Spine and Wellness, USA

Dr. Alok Sharan is a Board-certified Spine Surgeon who is a pioneer in Awake Spine Surgery. His practice focuses on minimally invasive spine surgery. Dr. Sharan is a leading authority both nationally and internationally on the Awake Spinal Fusion procedure. Currently, he serves as the Director for Spine and Orthopedics at New Jersey Spine and Wellness.

Dr. Sharan obtained his undergraduate degree after being selected to the highly competitive Medical Program at Boston University. As part of this program he went on to receive his MD degree from the University of Medicine and Dentistry of New Jersey. He completed his spine surgery fellowship at the New York University Hospital.

Dr. Sharan was awarded the Best Doctor by the New York Magazine Best Doctor, and Westchester Magazine Best Doctor.

He has received numerous academic distinctions for his research with over 100 publications, abstracts, and book chapters. He has co-edited a textbook entitled Basic Science of Spinal Diseases.

Dr. Sharan currently serves as a Deputy Editor for the publication Clinical Spine Surgery.

Dr. Nader HEJRATI, MD

Fellow, University of Toronto, Canada

Dr. Nader Hejrati graduated from the medical school at the University of Zurich and completed his neurosurgical training in Switzerland. He completed his Residency at the combined Neurosurgery and Spine center at the University Hospital of Basel in Switzerland, before he moved to Toronto for a combined research and clinical fellowship at the University of Toronto with Prof. Michael Fehlings. His most recent achievements include the prestigious AO Spine North America Fellows Top Research Paper Award 2022 for his research in the field of bioengineered neural stem cells, and the Best Paper Award 2022 at the North American Spine Society NASS 2022. Following completion of his fellowship, he will be starting his new appointment as a Consultant Spine Surgeon at the Cantonal Hospital St. Gallen, one of only four nationwide accredited AO Spine centers.

GUEST FACULTIES

Dr. John THUNDYIL, MD, PhD

Associate Medical Director for Medical Affairs for Asia, Abbott Core Diagnostics

Dr. John is a trained medical physician with a PhD in Neurology majoring in Acute and Chronic neuronal injury mechanisms.

He has worked in premier institutes like the University of Queensland, Australia and the National Neuroscience Institute (NNI), Singapore, and has authored more that 25 publications.

He also has an extensive experience in pre-clinical, translational, and Ph II to PhIV clinical trials in immunology, neurology and transplant therapy areas

He is currently the Associate Medical Director for Medical Affairs for Asia at Abbott Core Diagnostics, and has been involved in projects on use of biomarkers in cardiology (High Sensitive Troponin-1 (hsTnI), natriuretic peptides (BNP and NT-proBNP), endocrinology (TRAb), neurology (mT BI assay).

Prof. Raymond Kai-yu TONG, PhD

Professor and Chairman, Department of Biomedical Engineering
The Chinese University of Hong Kong

Prof. Raymond Kai-yu Tong is the Professor and Chairman in the Department of Biomedical Engineering, the Chinese University of Hong Kong. His research interests include Rehabilitation Robotics (e.g. Hand of Hope), Brain-Computer Control Interface (BCI), Neural Engineering, Functional Electrical Stimulation(FES) and Cognitive Assessment Software. Prof. Tong has been honoured with the "Global Ageing Influencers 2021" award at the 9th Asia Pacific Eldercare Innovation Awards Ceremony held by the Ageing Asia in Singapore. His research, innovation and service have received Awardee of the 2013 Ten Outstanding Young Persons (Hong Kong); the Grand Prix Award(the highest honor) of the International Exhibition of Inventions of Geneva 2012; Winner Award(e-Health) (the highest honor) in the Asia Pacific ICT Award 2012; and HKIE innovation awards for young members(2008), gold awards in international invention exhibitions(2004, 2007, 2010, 2015, 2016). Webpage: http://www.bme.cuhk.edu.hk/kytong

GUEST FACULTIES

Prof. Thomas Kup-sze CHOI, PhD

Professor and Director of the Centre for Smart Health
Hong Kong Polytechnic University

CHOI Kup-Sze (Thomas) has been engaging in cross-disciplinary research spanning across computer science, medicine and healthcare for over two decades. He has conducted research in computer graphics, haptics and virtual reality, with a range of applications including soft-tissue biomechanics, surgical simulation, rehabilitation and clinical education. Thomas has put more emphasis on artificial intelligence research, developing machine learning algorithms and applications for healthcare, e.g., prediction of elderly quality of life, dementia risk, post-surgery mortality and cancer risk through data-driven approaches. The work has also been extended to the development of intelligent algorithms to identify movement intentions in brain computer interface applications. Thomas earned his Ph.D. degree in Computer Science and Engineering from the Chinese University of Hong Kong. He is currently a Professor with the Hong Kong Polytechnic University, and the Director of the Centre for Smart Health.

Prof. Leanne CHAN, PhD

Associate Professor, Department of Electrical Engineering
The City University of Hong Kong

Dr. Leanne Chan is now Associate Professor at Department of Electrical Engineering at The City University of Hong Kong. She received her BEng degree in Electrical and Electronic Engineering from The University of Hong Kong, and obtained her MSc degree in Electrical Engineering and PhD degree in Biomedical Engineering from The University of Southern California. She conducted post-doctoral research in visual neuroscience at Developmental Neuroscience Department at Saban Research Institute, Children's Hospital of Los Angeles in 2009. She joined The City University of Hong Kong as an Assistant Professor in 2011. Her research focuses on the development of neural implant utilizing neurophysiological and biosignal processing techniques with a focus on restoring vision in animal model of retinal degeneration. After joining The City University of Hong Kong, she also broadens her research interests in computer vision.