

2025 ICM+ Workshop in Taiwan

Real-Time Multimodality Monitoring, Analysis and Data Storage in Neurocritical Care
Bridging Neurocritical Care and Data Science for Better Outcomes

Date: 22 November 2025

Venue: Lecture Theatre, 6th Floor, Far Eastern Memorial Hospital

日期：2025年11月22日 (星期六)

地點：亞東紀念醫院六樓階梯教室

Time / 時間	Topic / 講題	Speaker / 講者	Moderator / 主持
08:00 – 08:20	報到 Registration & Welcome Coffee		
08:20 – 08:30	開幕致詞 Opening Remarks	郭曄嶸主任 Dr. Yeh-Jung Kuo	郭曄嶸主任 Dr. Yeh-Jung Kuo
08:30 – 09:10	Data Acquisition For Neuro-critical Care	Dr. Peter Smielewski	郭曄嶸主任 Dr. Yeh-Jung Kuo
09:10 – 09:50	Data Curation, Exploration, and Analysis In ICU	Dr. Peter Smielewski	郭曄嶸主任 Dr. Yeh-Jung Kuo
09:50 – 10:20	茶歇與交流時間 Coffee Break & Networking		
10:20 – 11:00	Interpretation & Clinical Context For Critical-ill Patient	Dr. Peter Smielewski	郭曄嶸主任 Dr. Yeh-Jung Kuo
11:00 – 11:40	Big Data & Batch Workflows	Dr. Peter Smielewski	郭曄嶸主任 Dr. Yeh-Jung Kuo
11:40 – 12:10	綜合座談與問答 Panel Discussion & Q&A	郭曄嶸主任 Dr. Peter Smielewski Neuro ICU Team	郭曄嶸主任 Dr. Peter Smielewski Neuro ICU Team
12:10 – 12:30	閉幕與賦歸 Closing Remarks & Group Photo	All Participants	All Participants

主辦單位 / Organizer: 亞東紀念醫院重症醫學部神經加護病房

協辦單位 / Co-organizer: Cambridge Brain Physics Laboratory

Cambridge University × Far Eastern Memorial Hospital

2025 ICM+ Workshop in Taiwan

Speaker and Moderator Curriculum Vitae

Speaker

Dr. Peter Smielewski

Head, Brain Physics Laboratory, University of Cambridge, UK

****Education****

Ph.D., Biomedical Engineering, University of Cambridge

M.Sc., Medical Physics, University of Warsaw

2022 – Present University of Cambridge, Cambridge, UK. Head of Brain Physics Laboratory
2000 – 2022 University of Cambridge, Cambridge, UK. Senior Research Associate.

1996 – 2000 University of Cambridge, Cambridge, UK. Research Associate.

1993 – 1996 University of Cambridge, Cambridge, UK. Ph.D. degree in Medical Physics,

1986 – 1992 Warsaw University of Technology, Warsaw, Poland. MSc degree in Electrical Engineering.

****Professional Experience****

- Head, Brain Physics Laboratory, University of Cambridge
- 25+ years in brain monitoring and cerebrovascular physiology
- Developer of ICM+® software for cerebral autoregulation monitoring
- Collaborator in international brain injury research (CENTER-TBI, BOOST-3)

****Research Interests****

Cerebral autoregulation • Multimodal brain monitoring • Intracranial pressure • Neurocritical care technology

****Selected Publications****

Smielewski P, Czosnyka M. *Continuous assessment of cerebral autoregulation (PRx).* J Neurosurg

Czosnyka M, Smielewski P. *Intracranial pressure monitoring after TBI.* Nat Rev Neurol

****Biosketch****



Prof Peter Smielewski is a Research Professor, a co-founder and current head of Brain Physics Laboratory, Department of Clinical Neurosciences, University of Cambridge, UK. He specializes in intensive care unit monitoring, high resolution data collection, integration and analysis. He graduated from Warsaw University of Technology, with a Master degree in Electrical Engineering, and subsequently received his PhD at the Division of Neurosurgery, University of Cambridge, UK, where he developed computer-aided methods of non-invasive assessment of cerebral blood flow regulation. He is the author of a physiological monitoring data collection and real-time analysis software ICM+ licensed by Cambridge University to many clinical research centres worldwide (currently over 300), and which incorporates all the methods of assessment of various aspects of cranio-spinal dynamics that he and his colleagues have been developing over the last 30 years in the Brain Physics lab. His current focus includes methodologies for continuous assessment of cerebral autoregulation and cerebrovascular properties and their role in individualised management of traumatic brain injury patients. He has been leading numerous international workshops on advanced, applied neuromonitoring for many years, with particular focus on medical devices connectivity and waveform feature extraction from intracranial pressure, near-infrared spectroscopy and transcranial Doppler flow velocity measurements. He currently has nearly 600 PubMed entries and H-index of 102, with 42 500 citations to date.

Moderator

Dr. Yeh-Jung Kuo

Director, Neuro Intensive Care Unit, Far Eastern Memorial Hospital, Taiwan

****Education****

M.D., National Yang-Ming University

Fellowship in Neurocritical Care, University of Cambridge

****Professional Experience****

Director, Neuro Intensive Care Unit, and Attending Neurologist, Far Eastern Memorial Hospital

Visiting Scholar in Neurocritical Care, University of Cambridge



Over 15 years of experience in neurocritical care, stroke management, and multimodal monitoring

****Research Interests****

Neurocritical care • Intracranial pressure • Cerebral hemodynamics • ICU nutrition monitoring

****Selected Publications****

Kuo YJ, Lin IC, et al. *Clinical Application of Indirect Calorimetry in ICU Nutrition Assessment*.

Kuo YJ, et al. *Cerebral autoregulation assessment in neurocritical care*.

****Biosketch****

Dr. Yeh-Jung Kuo is the Director of the Neuro Intensive Care Unit at Far Eastern Memorial Hospital, Taiwan, and an attending neurologist with over 15 years of experience in neurocritical care, stroke management, and multimodal neuromonitoring. He obtained his M.D. from National Yang-Ming University and completed a fellowship in Neurocritical Care at the University of Cambridge, UK. Dr. Kuo's clinical and research interests focus on cerebral hemodynamics, intracranial pressure monitoring, and the application of indirect calorimetry in ICU nutrition assessment. He has led multiple projects on integrating physiological data for precision critical care and is actively involved in international collaborations in neuromonitoring education. His team's recent work emphasizes optimizing metabolic support and neuroprotection strategies in critically ill patients, contributing to improved outcomes in neuro-ICU practice.

Summary

What to Expect

The workshop will cover the full neuromonitoring data lifecycle, from bedside data collection to research analytics, including:

1. Data Acquisition For Neuro-critical Care
 - Participants will have an opportunity to put together a data collection set up, configuring ICM+ to integrate data from several bed-side monitors that will be made available to play with on the day.
2. Data Curation, Exploration, and Analysis In ICU
 - Participants will learn how to browse and analyses high resolution ICU data, how to extract meaningful information on physiology and pathophysiology from raw waveforms of neuromonitoring measurements.
3. Interpretation & Clinical Context For Critical-ill Patient
 - We will showcase some of the complex multimodal monitoring scenarios and discuss ways that advanced multimodal monitoring can help you in managing your patients.
4. Big Data & Batch Workflows
 - Although not the primary focus of this workshop installment we will also prepare exercises for streamlining analysis of large data sets, should more advanced users wish to explore cohort based exploration and analysis.