



Emerging capabilities in materials characterisation are enabling ASEAN researchers to build the technology of tomorrow. In collaboration with the ASEAN Committee on Science, Technology, and Innovation (COSTI) Subcommittee for Materials Science & Engineering (SCMST), the Facility for Analysis Characterisation Testing and Simulation (FACTS) at Nanyang Technological University, Singapore, is pleased to announce an online workshop covering the use of advanced characterisation techniques in metallurgy.

This week-long series of half-day sessions will include webinars and demonstrations by experts and invited speakers covering theory, techniques, and applications to help you get the most out of your instruments or elevate your research to new levels. This event is open to all ASEAN researchers from industry, academia and research organisations.

Speakers

<p>Dr Chris Boothroyd, Senior Principal Research Fellow, FACTS NTU Singapore</p>	<p>Chris Boothroyd is a Senior Principal Research Fellow at the Facility for analysis characterisation testing and simulation (FACTS), Nanyang Technological University, Singapore.</p> <p>In the past he worked in the Department of Materials Science and Metallurgy, University of Cambridge, at IMRE, Singapore, at the Center for Electron Nanoscopy, Technical University of Denmark and at the Jülich research centre (Forschungszentrum Jülich) in Germany.</p> <p>His research interests cover a wide variety of topics related to electron microscopy including aberration-corrected microscopy, energy-loss spectroscopy and electron holography.</p>
<p>Asst Prof Matteo Seita, National Research Foundation Fellow Nanyang Assistant Professor, School of Mechanical Aerospace Engineering NTU Singapore</p>	<p>Dr. Seita is an Assistant Professor at NTU, where he holds appointments in the School of Mechanical and Aerospace Engineering, the School of Materials Science and Engineering, and the Asian School of the Environment.</p> <p>He joined NTU in 2016 after working as a postdoctoral associate in the department of Materials Science and Engineering at MIT. He earned his Ph.D. in Materials Science from ETH Zurich in 2012.</p> <p>At NTU, Dr. Seita leads the Additive Microstructure Engineering Laboratory (AddME Lab), which focuses on understanding and controlling the microstructure complexity brought about by additive manufacturing processes to design novel materials with improved reliability and performance.</p>

<p>Dr. Jason S Herrin Principal Research Fellow, FACTS, NTU Singapore</p>	<p>Jason is a microanalyst specializing in the utilization of in situ solid state analytical techniques such as electron probe microanalysis (EPMA), laser ablation inductively-coupled plasma mass spectrometry (LA-ICP-MS), and scanning electron microscopy (SEM).</p> <p>A geologist by training, his own research involves the application of microanalytical techniques to volcano research, the study of meteorites, and asteroid impacts on Earth.</p>
<p>Dr Pio John S. Buenconsejo Senior Research Fellow, FACTS, NTU Singapore</p>	<p>Pio is a materials scientist specialising in applications of X-ray scattering and diffraction analysis for materials.</p> <p>His research interest includes combinatorial materials science, high-throughput materials characterisation and R&D of shape memory alloys.</p>
<p>Dr Tay Yee Yan Senior Research Fellow, FACTS, NTU Singapore</p>	<p>Dr Tay received his Ph.D. degree from the School of Materials Science and Engineering at Nanyang Technological University (NTU). He joined the Facility for Analysis Characterisation Testing & Simulation (FACTS) shared facilities, NTU in 2010, where he is in charge of the transmission electron microscopes (TEM).</p> <p>He was also involved with designing the purpose-built AToM@FACTS building, which currently houses the two state-of-the-art aberration corrected TEMs in the facility.</p>
<p>Dr Teddy Salim, Senior Research Fellow, FACTS, NTU Singapore</p>	<p>Teddy Salim completed both his B. Eng and PhD in materials science and engineering at NTU, Singapore. His doctorate thesis was on the self-assembly of polymers for photovoltaic application. He has been a Postdoc in Prof. Lam Yeng Ming's group since 2012 and has joined FACTS since mid 2015.</p> <p>His work is on new approaches to control the morphology of hybrid perovskites and to improve their ambient stability. In terms of materials characterization, his expertise lies in the surface characterisation using techniques such as XPS and AES.</p>
<p>Dr Alexis Lambourne Rolls-Royce plc.</p>	<p>Dr Al Lambourne is a material's engineer and researcher at Rolls-Royce, with 20 years' experience in delivering high class materials research to solve real-world problems. Al is a Chartered Engineer and Fellow of the Institute of Materials (IOM3), he has held a Royal Society Fellowship in electrical materials and has authored a wide range of patents and papers in materials research.</p> <p>With experience in industrial gas turbines, nuclear submarines, aerospace propulsion and electrification, Al has broad experience of a wide range of materials technologies, and specialises in bringing low TRL technologies through to meet near term technology needs.</p>
<p>Dr Jonathan Counsell, Applications Specialist,</p>	<p>Dr Counsell completed his studies in 2009 moving to the Royal Society of Chemistry as an editor of the physical chemistry journals.</p> <p>In 2011 he joined Kratos Analytical – a Shimadzu group company. He is at the forefront of efforts within Kratos to improve the capabilities of XPS instruments and to provide users with reliable methods and data. Jonathan was instrumental in establishing a calibration scheme for the silver X-ray source which is compatible with that of the</p>

<p>Kratos Analytical Ltd, UK</p>	<p>normal aluminium source. This enables users to simply and easily compare data taken using two widely different X-ray energies, providing insight into the depth distribution of chemical species.</p> <p>Through active collaborations with others, he has extended the application of argon cluster sputtering to metallic nitrides and, using sample rotation, thick organic films. He contributes extensively to the surface analysis community through his participation in interlaboratory studies, as an ISO technical expert (ISO TC201) and was recently elected as a member of the AVS Applied Surface Science Division. He was recently awarded the Vickermann Prize for contributions to surface analysis.</p>
<p>Dr Wu Jiang Senior Application Scientist, Oxford Instruments</p>	<p>Dr. Wu Jiang is a Senior Application Scientist of Oxford Instruments working in Singapore. He is responsible for the microanalysis products of EDS, EBSD and WDS in Southeast Asia.</p> <p>He also worked for EDAX as an application specialist working in Shanghai before joining Oxford Instruments. He has ten-years' work experience in this field.</p> <p>He holds a doctorate degree in Materials Physics and Chemistry from Dalian University of Technology (China) and a co-joint doctoral degree in Materials Science from University of Lorraine (France). After finishing PhD, he was a post-doctoral fellow at the laboratory of LEM3-CNRS in Metz</p>
<p>Dr Tetsuo Oikawa Senior Product Manager for TEM, JEOL Asia Pte Ltd</p>	<p>Dr Oikawa is the senior product manager for TEM JEOL Asia Pte Ltd. He has nearly 45 years of experience in Transmission Electron Microscopy.</p> <p>He joined JEOL Ltd in 1980 to develop the analytical TEM. From 2005 to 2006, he was the assistant general manager of Electron Optics Division in JEOL and took up the Directorship in the European Application Group in JEOL (Europe) SAS from 2007 to 2011. During the years, he has been also being an Adjunct Professor in the University of Sydney from 2002 to 2012 and as an invited Professor in University of Paris 7 from 2005 - 2014. His research interests cover a wide variety of topics related to electron microscopy, analytical electron microscopy, electron optics, Electron Energy Loss Spectroscopy (EELS) as well as image science</p>
<p>Dr Wong Jen-It Application Engineer, JEOL Asia Pte Ltd</p>	<p>Dr Wong is currently an application engineer at JEOL Asia Pte Ltd where he specialized in utilizing aberration corrected scanning & transmission electron microscope to meet client's R&D objectives.</p> <p>Prior joining JEOL, he was a researcher at SUTD and NTU. He is a member of the IEEE and has served as reviewer for IEEE Transactions on Electron Devices (T-ED), Nanoscience&Nanotechnology Letters (NNL), Journal of Luminescence as well as Materials&Design.</p> <p>His current research interests are in the area of functional nanomaterials with particular focus to their application in optoelectronic device and bio- or toxic gas sensing.</p>

Programme

	7 Dec (Mon) (EBSD, EPMA)	8 Dec (Tue) (XPS)	9 Dec (Wed) (XRD)	10 Dec (Thur) (TEM)	11 Dec (Fri)
09:00 - 09:30	Welcome Speech Lam Yeng Ming (09:15 - 09:30)	Solving metallurgical materials problems with XPS: basics and applications <i>Teddy Salim</i>	X-ray diffraction stress-strain analysis of metals <i>Pio Buenconsejo</i>	Introduction to Transmission Electron Microscopy (TEM) <i>Chris Boothroyd</i>	Advanced optical metallography techniques for the characterisation of additively manufactured metals <i>Matteo Seito</i>
09:30 - 10:00	Electron backscatter diffraction: The "gold standard" in metallography			TEMSample Preparation <i>Tay Yee Yan</i>	
10:00 - 10:30	<i>Matteo Seito</i>				
10:30 - 11:00	Electron Probe MicroAnalysis (EPMA): Precision and accuracy through energy resolution	Q&A	Q&A	Scanning Transmission Electron Microscopy / X-ray Energy Dispersive Spectroscopy / Electron Energy Loss Spectroscopy	Q&A
11:00 - 11:30	<i>Jason Herrin</i>				
11:30 - 12:00	Q&A			<i>Chris Boothroyd</i>	Closing Remarks Lam Yeng Ming (11:30 - 11:45)
15:00 - 15:30	EBSD Demo <i>Wu Jiang</i>	Developments in XPS - a perspective for multi-phase materials and 2D/3D analysis	Materials testing & characterisation supporting Hybrid Aerospace	TEM Demo	
15:30 - 16:00		<i>Jonathan Counsell</i>	<i>Alexis Lambourne</i>	<i>Tetsuo Dikawa / Wang Jen-IT</i>	
16:00 - 16:30		XPS Demo <i>Jonathan Counsell</i>			
16:30 - 17:00					