The 10th Annual Ambient Pressure X-ray Photoelectron Spectroscopy Workshop

December 5-8

CHANG YUNG-FA FOUNDATION (CYFF)

International Convention Center

Room 1001, 10F

Taipei, Taiwan

Schedule at a Glance

Time	Tue. (Dec. 5)	Wed. (Dec. 6)	Thu. (Dec. 7)	Fri. (Dec. 8)
	Chair: Y.- W. Yang	Chair: B. S. Mun	Chair: C.- H. Chen	
9:00- 9:30	Registration	**Hiroshi Kondoh**	**R. Weatherup**	Transfer to NSRRC (8:30- 10:10)
9:30- 9:50		C.- H. Chuang	G. Held	
9:50- 10:10		F. Garcia-Martinez	L. Cardenas	Group Photo 2
10:10- 10:20		S. Mauri	M. Scardamaglia	Coffee break
10:20- 10:30	Dir. C.- H. Hsu			
10:30- 10:50	**Anders Nilsson**	Coffee break	Coffee break	Chair: G. Held
		Chair: J. Schnadt	Chair: B.- H. Liu	**Edman Tsang**
10:50- 11:20		**Meng-Fan Luo**	**Slavomir Nemsak**	
11:20- 11:40	J. Schnadt	R. Bliem	M. Seo	Jan Knudsen
11:40- 12:00	M. Blum	F. Mirabella	P. Amann	Y. Takagi
12:00- 13:30	Lunch	Lunch	Lunch	APXPS 2024 Lunch
	Chair: R. Weatherup	Chair: C.- H. Chuang		
13:30- 14:00	**Rik Mom**	**I. Waluyo**	Group Photo 1	NSRRC Tour
14:00- 14:20	L. Braglia	C.- M. Yang		
14:20- 14:40	A. Ghafari	H. J. Kim		
14:40- 15:00	R. Toyoshima	M. Moritz		
15:00- 15:20	A. Beniwal	M. Guo		
15:20- 15:40	Coffee break	Coffee break	Excursion	
	Chair: C.- H. Wang	Chair: I. Waluyo		
15:40- 16:10	**Heng-Liang Wu**	**B. A. J. Lechner**		
16:10- 16:30	B. Jeong	A. Thissen		
16:30- 16:50	M. Günthel	T. Wada		Back to Taipei
16:50- 17:10	P. Lömker	Technical Session		
17:10- 17:30				
17:30- 20:00		Poster Session	Conference Dinner (18:00- 20:30)	

Scientific Program (December 5)

December 5 (Tuesday) ***Place: Rm.1001, CYFF***

09:00 Registration

Session Chair: Yaw-Wen Yang

10:20 **Opening Remarks**

Chia-Hung Hsu, Director, NSRRC

10:30 Plenary **Ambient XPS Studies of CO/CO_2 and N_2 Catalytic Reduction Reactions**

Anders Nilsson, Stockholm University, Sweden

11:20 **Role of temperature, pressure and surface oxygen migration in the initial atomic layer deposition of HfO_2 on anatase TiO_2(101)**

Joachim Schnadt, Lund University, Sweden

11:40 **CO_2 Absorption Processes at the Liquid-Vapor Interface of Aqueous Amine Solutions**

Monika Blum, Lawrence Berkeley National Lab, USA

12:00 Lunch

Session Chair: Robert Weatherup

13:30 Invited **The Chemistry of Ions at the Electrode-Electrolyte Interface**

Rik Mom, Leiden University, The Netherlands

14:00 **Investigation of the unsaturated metal surface sites in MOFs: An in situ/operando ambient pressure NEXAFS study**

Luca Braglia, Area Science Park, Italy

14:20 **Electronic structure of NiO_x by in situ spectro-electrochemistry**

Aliakbar Ghafari, Max Planck Institute for Chemical Energy Conversion, Germany

14:40 **In-situ/operando APXPS studies for hydrogen related surface functional materials**

Ryo Toyoshima, Keio University, Japan

15:00 **Potential Synergism Between Sub-nanometer Pd-Clusters and Adjacent NiOx Domains Underneath for High-Performance CO_2 Methanation: An Ambient Pressure X-Ray Photoelectron Spectroscopy Study**

Amisha Beniwal, National Tsing Hua University, Taiwan

15:20 **Coffee Break**

Session Chair: Chia-Hsin Wang

15:40 Invited **In situ spectroscopy studies of photocatalytic and electrocatalytic CO_2 reduction reaction**

Heng-Liang Wu, National Taiwan University, Taiwan

16:10 **Probing Catalytic Active Sites for Electrochemical Oxygen Reduction: In situ NAP-XPS and NAP–SXAS Analysis of Gas Adsorption on Fe-N-C**

Beomgyun Jeong, Korea Basic Science Institute, Korea

16:30 **Applied NAP-XPS on Sensitive Materials**

Michael Günthel, Fraunhofer Institute for Solar Energy Systems, Germany

16:50 **Comparing Fischer-Tropsch synthesis at 1bar on flat and stepped Co Single Crystals by operando with AP-XPS**

Patrick Lömker, XsoLaS / Stockholm University, Sweden

Scientific Program (December 6)

December 6 (Wednesday) ***Place: Rm.1001, CYFF***

Session Chair: *Bongjin Simon Mun*

09:00 Invited **In Situ Observations for Catalytic Surfaces with Surface Spectroscopy: AP-XPS and Related Techniques**
Hiroshi Kondoh, Keio University, Japan

09:30 **Water coupling in reduced graphene oxide enhanced by the oxidation functional groups**
Cheng-Hao Chuang, Tamkang University, Taiwan

09:50 **Chemistry and structure of Rh stepped surfaces during NO dissociation at ambient pressures**
Fernando Garcia Martinez, DESY, Germany

10:10 **Hydrogen Production Mechanism in Low-Temperature Methanol Decomposition Catalyzed by Ni3Sn4 Intermetallic Compound: A Combined Operando and Density Functional Theory Investigation**
Silvia Mauri, CNR-IOM, Italy

10:30 **Coffee Break**

Session Chair: *Joachim Schnadt*

10:50 Invited **Catalysis model-system studies under near-ambient-pressure conditions: decomposition of methanol-d4 on Rh nanoclusters supported by thin film Al_2O_3/NiAl(100)**
Meng-Fan Luo, National Central University, Taiwan

11:20 **Photoemission During Plasma Exposure (Plasma XPS) on the Example of Ru Model Catalyst Surfaces**
Roland Bliem, Advanced Research Center for Nanolithography, The Netherlands

11:40 **Enriching Photoelectron Spectroscopy Instrumentation: New Developments in NAP-XPS Analysis**
Francesca Mirabella, SPECS Surface Nano Analysis GmbH

12:00 **Lunch**

Session Chair: *Cheng-Hao Chuang*

13:30 Invited **The effect of Rh dopants in enhancing the surface reactivity of copper and copper oxide in oxidation and hydrogenation reactions**
Iradwikanari Waluyo, National Synchrotron Light Source II, USA

14:00 **Spectroscopic Studies on Silver-Loaded Defect Pyrochlore Tantalate Nanocrystals for Photocatalytic Water Splitting into Hydrogen and Hydrogen Peroxide**
Chia-Min Yang, National Tsing Hua University, Taiwan

14:20		**Near ambient pressure x-ray photoemission spectroscopy (APXPS) analysis of VSe_2-xO_x under water vapor environment** *Hyuk Jin Kim, University of Seoul, Korea*
14:40		**The Active Site in Liquid Alloy GaPt Catalysts – a NAPXPS Study** *Michael Moritz, FAU Erlangen-Nürnberg, Germany*
15:00		**Evolution of active oxygen species over silver foil in ethylene epoxidation revealed by ambient pressure X-ray photoelectron spectroscopy** *Man Guo, Paul Scherrer Institute, Switzerland*
15:20		**Coffee Break**
		Session Chair: *Iradwikanari Waluyo*
15:40	Invited online	**Support and environment effects in particle encapsulation on reducible oxides** *Barbara A.J. Lechner, Technical University of Munich, Germany*
16:10		**Quantification and Reporting of XPS Data taken under Near Ambient Pressure Conditions – Chances and Challenges** *Andreas Thissen, SPECS Surface Nano Analysis GmbH*
16:30		**Current status of the development of ambient pressure X-ray photoelectron spectroscopy system at NanoTerasu BL08U** *Tetsuyta Wada, The university of Tokyo, Japan*
16:50		**Technical Session**
17:30		**Poster Session**

Scientific Program (December 7)

December 7 (Thursday) ***Place: Rm.1001, CYFF***

Session Chair: *Chia-Hao Chen*

09:00	Invited	**Revealing Reactions at Electrochemical and Catalytic Interfaces: Membrane-based Operando Approaches** *Robert Weatherup, University of Oxford, UK*
09:30		**Operando XPS Studies of size-selected Pd and Pd-Pt nanoparticles on "spectroscopy friendly" Alumina Support** *Georg Held, Diamond Light Source, UK*
09:50		**Membrane cells for in situ XPS characterization in a standard UHV-XPS instrument** *Luis Cardenas, Université Claude Bernard Lyon 1, France*
10:10		**Simultaneous APXPS and electrical response of WS_2 gas sensors towards the exposure to toxic gases to explore the sensing mechanism** *Mattia Scardamaglia, MAX IV Laboratory, Sweden*
10:30		**Coffee Break**

Session Chair: *Bo-Hong Liu*

10:50	Invited	**Correlating Chemical and Morphological Transformations through Multi-Modal X-ray Characterization** *Slavomir Nemsak, Advanced Light Source, USA*
11:20		**Monitoring the influence of solid surface potential on gas phase using AP-XPS** *Minsik Seo, Gwangju Institute of Science and Technology, Korea*
11:40		**Latest developments in APXPS by Scienta Omicron** *Peter Amann, Scienta Omicron*
12:00		**Lunch**
13:30		**Excursion**
17:30		**Banquet**

Scientific Program (December 8)

December 8 (Friday) ***Place: Rm.D260, NSRRC***

08:30		**Transfer to NSRRC (Hsinchu)**
10:00		**Group Photo**
10:10		**Coffee Break**
		Session Chair: *Georg Held*
10:30	Plenary	**Catalyst Surface Characterization by APXPS** *Edman Tsang, University of Oxford, UK*
11:20		**Probing minority sites and their activity using chemical perturbations and Fast Fourier Transformed Ambient Pressure X-ray Photoelectron Spectroscopy** *Jan Knudsen, NanoLund / MAX IV laboratory, Sweden*
11:40		**Development of the ambient pressure hard X-ray photoelectron spectroscopy in BL46XU at SPring-8** *Yasumasa Takagi, Japan Synchrotron Radiation Research Institute, Japan*
12:00		**APXPS 2024**
12:10		**Lunch**
13:30		**Taiwan Photon Source site tour**
15:00		**Back to Taipei**