

Report on 70th IUVSTA Workshop -IUVSTA Workshop for Surface Analysis and Standardization 2013 (iSAS-13)-

January 15-19, 2013

Okinawa-Jichikaikan, Okinawa, Japan.

Sponsored by the Applied Surface Science Division of IUVSTA

1. Brief Scientific Report

Surface chemical analysis (SCA) plays an important role in various fields of industries since SCA is one of the key techniques to characterize materials and devices during their development and fabrication. Improvements in both theory and instrument have been contributing to the high potential of the SCA techniques, such as high-accuracy, sensitivity, and throughput, and, at the same time making SCA instruments black box more and more. For achieving a higher level of characterization of materials and devices using SCA techniques, collaboration of scientists and researchers between academia and industry is essential. Furthermore, the rapid globalization in industries is strongly requesting SCA to be performed according to international rules and/or guidelines in order to improve traceability of SCA. In this regard, the publication of international standards reflecting needs from industries is inevitable. Therefore, the scope of iSAS-13 is focused on “practical SCA in industries” and “standardization in SCA”. We aimed at sharing information among scientists and researchers in academia and industry.

The scientific field and scope of the workshop falls within the area of activity of the Applied Surface Science Division of IUVSTA. The attendees of the workshop were basically consisted of invited speakers, and we accepted attendance of several scientists and researchers from industries in order to reflect their opinions to discussion. Many of the best and most active researchers in this field participated in the workshop. The 38 participants from 11 countries of Asia, Europe and North America attended the workshop. The scientific program of the meeting was developed by the Organizing Committee members, K. Yanagiuchi (TDK, Japan), S. Tanuma (National Institute for Materials Science, Japan), H. J. Kang (Chunbuk National University, Korea), and T. Nagatomi (Osaka University, Japan).

The structure of the scientific program was based on sessions of about 90 minutes duration. The presentation times were 70 minutes (50 minutes talk + 20 minutes discussion) and 45 minutes (30 minutes talk + 15 minutes discussion) for the plenary and invited talks. There were 4 sessions per day, except the 2nd and the last days, and

informal discussions took place with refreshments provided during coffee breaks and lunch and dinner. The extended discussions following the presentations were interesting and stimulating. 6 contributors presented their short presentation (3 minutes talk + 4 minutes discussion) and poster presentation (80 minutes). Each session focused on a particular scientific topic and moderated by chairpersons selected from experts of the topic.

The venue of the meeting was the Okinawa Jichi-kaikan. The conference venue, the hotel, and the restaurant for lunch are located in one building. We arranged the conference dinner or banquet every night. These arrangements made participants spend their time together, providing enough time for discussion. Excursion was also organized, and all participants experienced Okinawa's unique culture through foods and excursion.

2. Financial Statement

It is certified that the financial support of 6,000 EURO provided by the IUVSTA for 70th IUVSTA workshop for Surface Analysis and Standardization 2013 (iSAS-13) was fully used to cover fixed costs, namely the cost of 16 invited speakers.

February 19, 2013

Katsuaki Yanagiuchi
Chair of Organizing Committee

Attached documents:

Scientific Program

List of Participants

Budgets

iSAS-13 Program

Plenary talk: 50 min. talk + 20 min. discussion

Invited talk: 30 min. talk + 15 min. discussion

Poster short presentation: 3 min. talk + 4 min. discussion

January 15 (Tue), 2013

Registration 17:00-17:30

Welcome reception 18:00-20:00

January 16 (Wed), 2013

Registration 9:30-9:45

Opening Remark (Chair: S. Tanuma) 9:45-10:05

L. Kover (ATOMKI, Chair of Applied Surface Science Division of IUUVSTA)

K. Yanagiuchi (TDK, President of Surface Analysis Society of Japan)

Plenary Talk (Chair: S. Tanuma) 10:05 -11:15

O-01 10:05-11:15

(Invited) K. Yoshihara* (*Omicron Nanotechnology Japan, Japan)

Science and Standardization in Practical Surface Chemical Analysis

Break 11:15-11:35

Quantitative analysis by electron spectroscopies I (Chair: K. Yoshihara) 11:35-12:20

O-02 11:35-12:20

(Invited) C. J. Powell* (*National Institute of Standards and Technology, USA)

Trend and Future of Surface Chemical Analysis by Electron Spectroscopies

Lunch 12:20-13:20

Quantitative analysis by electron spectroscopies II (Chair: C. J. Powell and W. S. M. Werner) 13:20-14:50

O-03 13:20-14:05

(Invited) A. Jablonski* (*Polish Academy of Science, Poland)

Role of parameters defining electron transport in quantification of electron spectroscopies

O-04 14:05-14:50

(Invited) S Tanuma* (*National Institute for Materials Science, Japan)

Present Status of Standardization of Quantitative Surface Chemical Analysis by AES and XPS

Break 14:50-15:10

Non-destructive analysis by x-ray photoelectron spectroscopy (Chair: A. Jablonski and H. Yoshikawa)

15:10-16:40

O-05 15:10-15:55

(Invited) L. Kövér* (*ATOMKI, Hungary)

Practical Applications of Hard X-ray Photoelectron Spectroscopy

O-06 15:55-16:40

(Invited) A. Herrera-Gomez* (*Cinvestav, Mexico)

Practical Application of ARXPS to Materials Characterization

Round Table (Chair: K. Yanagiuchi) 16:40-17:30

Conference dinner 18:00-20:00

January 17 (Thu), 2013

Secondary ion mass spectrometry I (Chair: K. J. Kim and S. Heo) 9:15-10:45

O-07 9:15-10:00

(Invited) Y. K. Kyoung, H. I. Lee, J. G. Chung, and H. J. Kang* (*Chungbuk National University, Korea)

Interactions between Ion/cluster Beam and Solid Surface for Practical Surface Chemical Analysis

O-08 10:00-10:45

(Invited) H. Itoh* (*Konica Minolta Technology Center, Japan)

Practical Surface Chemical Analysis of Organic Materials

Break 10:45-11:05

Secondary ion mass spectrometry II (Chair: H. Otomo and H. Itoh) 11:05-12:35

O-09 11:05-11:50

(Invited) I. Gilmore* (*National Physical Laboratory, UK)

International Standards for SIMS of Organics and Nano-Objects: Progress and Emerging Requirements

O-10 11:50-12:35

(Invited) K. J. Kim* (*Korea Research Institute of Standards and Science, Korea)

Present Status of Standardization of Surface Chemical Analysis in Korea

Lunch 12:35-13:35

Excursion 13:35-17:30

Shurijo Castle Park

Conference dinner 18:00-20:00

January 18 (Fri), 2013

Electron-solid interactions (Chair: L. Kover and H. Tougaard) 9:15-10:45

O-11 9:15-10:00

(Invited) W. S. M. Werner* (*Vienna University of Technology, Austria)

Electron Scattering, Secondary Electron Emission and XPS Spectra on Nanostructures

O-12 10:00-10:45

(Invited) Z.J. Ding,* P. Zhang, B. Da, Z. Ruan, and S.F. Mao (*University of Science and Technology of China, China)

Monte Carlo Simulation of Scanning Electron Microscopy Images and Surface Excitation at Rough Surfaces

Break 10:45-11:05

Data analysis (Chair: A. Herrera-Gomez and Z.-J. Ding) 11:05-12:35

O-13 11:05-11:50

(Invited) S. Tougaard* (*University of Southern Denmark, Denmark)

Analytical Approach for Quantitative Surface Chemical Analysis using AES and XPS

O-14 11:50-12:35

(Invited) H. Yoshikawa* (*National Institute for Materials Science, Japan)

Database of Optical Constants of Semiconductors for Surface Chemical Analysis

Lunch 12:35-13:35

Practical applications (Chair: H. J. Kang and I. Gilmore) 13:35-15:05

O-15 13:35-14:20

(Invited) S. Otomo* (*Furukawa Electric, Japan)

Characterization of Metals and Semiconductors by Surface Chemical Analysis Techniques

O-16 14:20-15:05

(Invited) S. Heo,* J. G. Chung, H.-I. Lee, J. C. Lee, G. S. Park, H. J. Kang, T. Nagatomi, and Y. Takai (*Samsung Advanced Institute of Technology, Korea)

Surface Chemical Analysis Applied to Development of Materials And Devices

Break 15:05-15:25

Poster short presentation (Chair: J. Ariake and T. Nagatomi) 15:25-16:10

Poster presentation (Chair: J. Ariake) 16:10-17:30

Banquet 19:00-22:00

January 19 (Sat), 2013

Round Table (Chair: K. Yanagiuchi) 9:15-10:25

Break 10:25-10:45

Round Table (Chair: K. Yanagiuchi) 10:45-11:55

Closing 11:55-12:00

S. Tanuma (National Institute for Materials Science, Japan)

Poster Presentation

Instruction

- The size of the poster panel is A0 size (84 cm in width and 119 cm in height).
- Presenters are requested to mount their posters on the panels assigned by the poster numbers in the morning of January 16, 2013. The poster presentation will be open during the whole period of the conference.
- The presenters are assigned to give their short oral presentation in the afternoon session of January 18, 2013. The presentation time is 3 minutes talk and 4 minutes discussion, including a time for moving to the next speaker. Each presentation is stopped by Chair when 7 minute has passed. Only the projector is available for the poster short presentation. The next speaker should wait for their turn in line near the present speaker in order to move to the next presentation.
- The presenter is asked to check whether their PC can connect exactly with the projector before the session.

Poster presentation

- P-1 A. Tanaka,* H. Iwai, T. Ogiwara, T. Kimura, S. Fukushima, and S. Tanuma (*National Institute for Materials Science, Japan)
Definition and Quantification of Unintended Degradation
- P-2 N. Ishizu,* T. Nagatomi, and DP-WG of SASJ (*Panasonic Corporation, Japan)
Report on Depth-Profiling Working-Group of SASJ
- P-3 T. Nagatomi* and DP-WG of SASJ (*Osaka University, Japan)
Development of Software for Quantitative Analysis of Depth Profiles
- P-4 D. Kobayashi,* T. Sekine, T. Suzuki, Y. Yamamoto, and T. Isemura (*Asahi Glass Co., Ltd., Japan)
Optimal Sputter Ion Source for Depth Profile Analysis of Glass
- P-5 S. Aoyagi,* J. S. Fletcher, S. Sheraz, T. Kawashima, I. B. Razo, A. Henderson, N. P. Lockyer, and J. C. Vickerman (*Shimane University, Japan)
Peptide Structural Analysis using Continuous Ar Cluster Beams
- P-6 N. Ishikawa,* M. Takeguchi, and T. Inami (*National Institute for Materials Science, Japan)
In-Situ Observation of Fe Precipitate in FeO Which Includes Si at Elevated Temperature

Participant list of iSAS-13

| First name | Last name | Affiliation | Country |
|----------------|---------------|------------------------------------------------|---------|
| Satoka | Aoyagi | Shimane University | Japan |
| Masahiro | Arai | Nippon Steel & Sumitomo Metal Corporation | Japan |
| Jun | Ariake | Akita Industrial Technology Center | Japan |
| Ze-Jun | Ding | University of Science and Technology of China | China |
| Ian | Gilmore | National Physical Laboratory | UK |
| Sung | Heo | Sumsung | Korea |
| Alberto | Herrera-Gomez | Cinvestav | Mexico |
| Ayako | Hirai | Canon Inc. | Japan |
| Nobuhiro | Ishikawa | National Institute for Materials Scienc | Japan |
| Noriko | Ishizu | Panasonic Corporation | Japan |
| Hiroto | Itoh | Konica Minolta Technology Center | Japan |
| Hideo | Iwai | National Institute for Materials Scienc | Japan |
| Aleksander | Jablonski | Polish Academy of Sciences | Poland |
| Yasuko | Kajiwara | Mitsubishi Gas Chemical Co. Inc. | Japan |
| Hee Jae | Kang | Chungbuk National University | Korea |
| Kyung Joong | Kim | Korea Research Institute of Standards and | Korea |
| Daisuke | Kobayashi | ASAHI GLASS CO., LTD. | Japan |
| Laszlo | Kover | ATOMKI | Hungary |
| Ichiro | Mihara | Kuraray CO., LTD | Japan |
| Takaharu | Nagatomi | Osaka University | Japan |
| Syuichi | Ogawa | Tohoku University | Japan |
| Tomomi | Ogawa | Accompanying | Japan |
| Toshiya | Ogiwara | National Institute for Materials Scienc | Japan |
| Tadao | Okano | National Institute for Materials Scienc | Japan |
| Shinya | Otomo | Furukawa Electric, Japan | Japan |
| Cedric J. | Powell | National Institute of Standards and Technology | USA |
| Takeru | Saito | Thermo Fisher Scientific K.K. | Japan |
| Michiko | Sato | Fujitsu Quality Laboratory Ltd. | Japan |
| Kazuyuki | Sugiyama | National Institute for Materials Scienc | Japan |
| Kazuhiro | Takahashi | Shimadzu Corporation | Japan |
| Akihiro | Tanaka | National Institute for Materials Scienc | Japan |
| Shigeo | Tanuma | National Institute for Materials Science | Japan |
| Sven | Tougaard | University of Southern Denmark | Denmark |
| Wolfgang S. M. | Werner | Vienna University of Technology | Austria |
| Yasuo | Yamauchi | Yazaki Corporation | Japan |
| Katsuaki | Yanagiuchi | TDK Corporation | Japan |
| Kazuhiro | Yoshihara | Omicron Nanotechnology Japan | Japan |
| Hideki | Yoshikawa | National Institute for Materials Scienc | Japan |

Budget for 70th IUVSTA Workshop (iSAS-13)

Income

Unit: 1,000JPY

| | For contributors | For invited speakers ¹⁾ | Remarks |
|--------------------|------------------|------------------------------------|------------------------------------|
| Registration fee | 640 | 0 | 21 contributors and 1 accompanying |
| IUVSTA | 0 | 756 | Temporal rate: 126 JPY/EURO |
| NIMS ²⁾ | 427 | 0 | |
| SASJ ³⁾ | 201 | 0 | |
| Total | 1,268 | 756 | |

¹⁾ 16 invited speakers

²⁾ National Institute for Materials Science

³⁾ Surface Analysis Society of Japan

Expense

| | For contributors | For invited speakers ¹⁾ | Remarks |
|----------------------------|------------------|------------------------------------|-----------------------------------------------------------|
| Conference rooms | 427 | 0 | Including utilities and refreshments |
| Accommodation | 442 | 350 | |
| Lunch | 46 | 36 | |
| Dinner and | 304 | 248 | |
| Excursion | 0 | 19 | |
| Abstracts | 13 | 10 | |
| Support for travel expense | 0 | 90 | |
| Others | 36 | 3 | Correspondence expenses, name folders, handling fee, etc. |
| Total | 1,268 | 756 | |