

The 9th Korea-Japan Workshop

on

**Thin Film and Plasma Process for Green Technology
Advanced Plasma Diagnostics for Plasma-Nano Processing**

July 9-11, 2009, Kwangwoon University, Seoul, Korea

Organized by

**Center for Advanced Plasma Surface Technology (CAPST), SKKU, Korea
Plasma Nanotechnology Research Center (PLANT), Nagoya University, Japan
Advanced PDP Collaboration Research Center, Kwangwoon University, Korea
Aichi Science and Technology Foundation (Tokai Region Knowledge
Cluster Headquarters)**

Supported by

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and Components, SKKU, Korea
Flexible Electronics Research Institute (FERI), SKKU, Korea
Plasma Center for Industrial Applications, Nagoya Urban Industries
Promotion Corp., Japan.
International Training Program, Japan Society for the Promotion of Science
*"Program for incubating young researchers on Plasma Nanotechnology
Material & Device Processing"***

Program

[July 9\(Thu\) Arrival and welcome reception in Seoul](#)

Reception time : pm 7:00 at Kwangwoon University

[July 10\(Fri.\)](#)

**08:30-09:00 Move to Kwangwoon university from hotel
And Registration**

09:00-09:10 Opening Remarks (Prof. Jeon G. Han, Prof. M. Hori)

Plenary and Invited lectures

Session chairperson Prof. Eun H. Choi (Kwangwoon University, Korea)
Prof. Y. Setsuhara (Osaka University, Japan)

- 09:10-09:50** Plenary talk from Korea
Prof. Han S. Uhm (Ajou University)
Electrolysis of Carbon Dioxide in Exhaust Gas from the
Burning of Hydrocarbon Fuel : Green plasma / Recent
research trend and future vision”
- 09:50-10:30** Plenary talk from Japan
Prof. Shiratani (Kyusyu University)
Thin film silicon solar cells: present and future
- 10:30-10:55** Invited talk from Korea
Dr. Yong J. Kim (Samsung electronics Co.)
Real time monitoring of plasma processing
- 10:55-11:20** Invited talk from Japan
Prof. Ishijima (Nagoya University)
High-Density Microwave Plasma Production For Thin Film Si
Solar Cell and Monitoring of SiH₄ Gas Dissociation Process
- 11:20-11:45** Invited talk from Korea
Prof. Nae E. Lee (SKKU)
Electrical reliabilities of flexible organic thin film transistors
with passivation and nanostructured gate dielectrics under
cyclic bending
- 11:45-12:10** Invited talk from Japan
Prof. Setsuhara (Osaka University)
Analyses of Plasma-Materials Interactions for Development
of Advanced Devices
- 12:10-13:30** Lunch and poster

Session chairperson

Youn J. Kim (SKKU, CAPST, Korea)

T. Takeuchi (Nagoya University, Japan)

- 13:30-15:10** **Korea-Japan international young researchers session**
(Oral + Poster)
(10 minute talks including discussion by 5 students from each country)
- 13:30-13:40** ***Young J. Hong (Kwangwoon University, Korea)***
Measurement of electron temperature and density using Stark broadening of the coaxial focused plasma for extreme ultraviolet lithography
- 13:40-13:50** ***A. Higuchi (Nagoya University, Japan)***
XAFS analysis of gold nano particle synthesized by solution plasma process
- 13:50-14:00** ***Kyung S. Shin (SKKU, CAPST, Korea)***
The effect of ICP on crystallinity of Si thin film on glass deposited by CFUBM system
- 14:00-14:10** ***Yuuki KAWASHIMA (Kyusyu University, Japan)***
Synthesis of crystalline Si nanoparticles for third generation photovoltaics using multi-hollow discharge plasma CVD and photoluminescence of the nanoparticles
- 14:10-14:20** ***Su B. Jin (SKKU, CAPST, Korea)***
Characterization of silicon oxide barrier films with controlling to the ion flux by plasma enhanced chemical vapor deposition
- 14:20-14:30** ***Yudai MIYAWAKI (Nagoya University, Japan)***
Damage-free ashing using dual frequency capacitively coupled Ar / O₂ plasma
- 14:30-14:40** ***Bong S. Kwon (SKKU, CAPST, Korea)***

Process window for infinitely high etch selectivity of silicon oxide to PVD a-C in dual-frequency capacitively coupled $C_4F_8/CH_2F_2/O_2/Ar$ plasmas

- 14:40-14:50 *Takehiro HIRAOKA (Wakayama University, Japan)*
Study of surface reaction monitoring in near-infrared region using all-fiber type absorption spectroscopy
- 14:50-15:00 *Chang G. Son and Yong G. Han (Kwangwoon University, Korea)*
Secondary electron emission characteristics of functional layer in AC-PDP
- 15:00-15:10 *Sang-M. Baek (Nagoya University, Japan)*
Effects of pulse bias on optical transparency of DLC films by ICP-CVD
- 15:10-15:20 Coffee break

Session chairperson Prof. Nae E. Lee (SKKU, CAPST, Korea)
Dr. S. Potocky (Nagoya University)

- 15:20-15:40 Invited talk from Japan
Prof. M. Hori (Nagoya University)
Advanced plasma diagnostics
- 15:40-16:00 Invited talk from Korea
Dr. Bong Joo Lee (NFRl)
Recent Progress on Industrial Plasma Technology
- 16:00-16:20 Invited talk from Japan
Prof. T. Ohta (Wakayama University)
Simultaneous monitoring of multi-metal atoms in magnetron sputtering plasma for synthesizing TCO films
- 16:20-16:40 Invited talk from Korea
Prof. Eun H. Choi (Kwangwoon University)

VUV absorption spectroscopy for measurement of excited Xe atoms in alternating current micro-discharged plasma

- 16:40-17:00** Invited talk from Japan
Prof. Kosaka (Nagoya University)
High-density microwave plasma generation for internal DLC coating of small mechanical parts
- 17:00-17:20** Invited talk from Korea
Prof. Sang H. Seo (KAIST)
Investigation of arcing phenomenon and development of arc monitor in rf discharge
- 17:20-17:40** Invited talk from Japan
Dr. S. Potocky, Nagoya University
Needle electrodes erosion in water plasma discharge
- 17:40-18:00** Invited talk from Korea
Dr. Yoon S. Choi (SKKU, CAPST)
A study on the crystallization of TCO and μ -crystalline silicon thin films by facing target sputtering
- 18:00-19:00** Poster session
(All poster materials should be posted from 09:00 to 13:30)
- 19:00-21:30** Get together banquet (Nearby Kwangwoon University)

July 11(Sat.)

09:00-12:00 Hotel check out and Palace Tour in Seoul

12:00-13:30 Collaboration meeting with lunch at old town of Seoul

13:30 Adjourn and departure to Incheon airport

Poster session

[KJP- 01] Yong H. Kim (Kwangwoon University, Korea)

Spatiotemporal behavior of excited Xe atom density in the 1s5 metastable state according to Ne-Xe and He-Ne-Xe gas mixtures at alternating current plasma display panel

[KJP- 02] T. Takeuchi (Nagoya University, Japan)

Study of photoresist surface modified layer employing selective ion beam

[KJP- 03] Byeong S. Cho (Kwangwoon University, Korea)

Liquid metal ion source with suppressor

[KJP- 04] Y. Miyawaki (Nagoya University, Japan)

Damage-free Ashing on Low-k Film Using Dual Frequency Capacitively Coupled Ar/O₂ Plasma

[KJP- 05] Kyung S. Shin (SKKU, CAPST, Korea)

The effect of ICP on crystallinity of Si thin film on glass deposited by CFUBM system

[KJP- 06] Y. Kawashima (Kyusyu University, Japan)

Synthesis of crystalline Si nanoparticles for third generation photovoltaics using multi-hollow discharge plasma CVD and photoluminescence of the nanoparticles

[KJP- 07] Su B. Jin (SKKU, CAPST, Korea)

Characterization of silicon oxide barrier films with controlling to the ion flux by plasma enhanced chemical vapor deposition

[KJP- 08] T. Hiraoka (Wakayama University, Japan)

Non-contact measurement of substrate temperature using optical low-coherence interferometry

[KJP- 09] Youn J. Kim (SKKU, CAPST, Korea)

Increased deposition rate of microcrystalline silicon films deposited with magnetic mirror assisted RF-PECVD

[KJP-10] Sang-M. Baek (Nagoya University, Japan)

Effects of pulse bias on optical transparency of DLC films by ICP-CVD

[KJP-11] Sung I. Kim (SKKU, CAPST, Korea)

A study of growth mechanism Intrinsic ZnO films synthesis by pulsed DC magnetron sputtering

[KJP-12] A. Higuchi (Nagoya University, Japan)

XAFS analysis of gold nano particle synthesized by solution plasma process

[KJP-13] Doo H. Song (SKKU, CAPST, Korea)

Low Temperature Synthesis of Al doped ZnO Thin Films by Facing Targets Sputtering System

[KJP-14] Y. Takahashi (Nagoya University, Japan)

Ultra water repellent film deposited on inner surface of narrow tube by ICP-CVD

Participants from Korea

Professors

Jeon G. Han, Professor, SKKU, CAPST

Han S. Uhm, Professor, Ajou University

Yong J. Kim, Doctor, Samsung Electronics

Nae E. Lee, Professor, SKKU

Bong J. Lee, Doctor, National Fusion Research Institute

Eun H. Choi, Professor, Kwangwoon University

Sang H. Seo, Professor, KAIST

Yoon S. Choi, Doctor, SKKU

Students

Session chairperson D2:Young Joon Hong, Kwangwoon University

D2:Kyung S. Shin, SKKU

D2:Youn J. Kim, SKKU

D2:Sung I. Kim, SKKU

D1:Su B. Jin, SKKU

D1: Bong S. Kwon, SKKU

D1: Chang G. Song and Yong G. Han, Kwangwoon University

M1: Doo H. Song, SKKU

M1: Byeong S. Cho, Kwangwoon University

M1: Yong H. Kim, Kwangwoon University

Postdoc: Ki B. Song, Kwangwoon University

Participants from Japan

Professors

Masaru HORI, Professor, Nagoya University

Masaharu SHIRATANI, Professor, Kyusyu University

Tatsuo ISHIJIMA, Assistant Professor, Nagoya University

Takayuki OHTA, Associate Professor, Wakayama University

Hiroyuki KOSAKA, Associate Professor, Nagoya University

Yuichi SETSUHARA, Professor, Osaka University

Post-doctral researcher

Posdoc: S. Potocky, Nagoya University

Students

Session chairman M2:Takuya TAKEUCHI, Nagoya University

M2:Yudai MIYAWAKI, Nagoya University

M1:Yuuki KAWASHIMA, Kyusyu University

M2:Takehiro HIRAOKA, Wakayama University

D2:S.-M. Baek, Nagoya University

M1:A. Higuchi, Nagoya University

M1: Y. Takahashi, Nagoya University