

4th Workshop on the Future Direction of Photovoltaics 6-7 March 2008, at Aogaku Kaikan in Tokyo, Japan

Scope of Workshop: Further development in the science and technology of photovoltaics is required in order to realize the *Roadmap PV2030* in Japan and meet worldwide sustainable energy targets. Ultimately, photovoltaics must substitute fossil energy sources, thereby solving many of the present global environmental problems.

For the above purpose, the scope of this workshop is to provide an opportunity to review and discuss the present status and future of solar cells, materials and industrial technologies.

Organized by: The Japan Society for the Promotion of Science,
The 175th Committee on Innovative Photovoltaic Power Generating Systems

March 6, Thursday

Opening

10:00-10:10

Opening Remarks

M.Konagai (Tokyo Tech, Chairman of the JSPS 175th Committee)

Session 1

10:10-10:30

National Program

Japanese PV R&D program

K.Matsubara (NEDO)

10:30-11:10

The research and development of PV in China

Shen Hui (SUN YAT-SEN Univ.)

11:10-11:50

Status and Prospects of PV Industry and R&D in Korea

Donghwan Kim (Korea University)

11:50-12:50

Lunch

Session 2

12:50-13:30

Si Solar Cells

Film Silicon for Photovoltaics: Low-Temperature Hot-Wire CVD Epitaxy and Nanocrystalline Silicon Growth

H.M.Branz, K.Jones, M.Romero, Chun-Shen Jiang, P.Stradins, C.W. Teplin (NREL)

13:30-14:10

Electrical and Mechanical Defects in Solar Cell Materials and Devices

T. Buonassisi (MIT)

14:10-14:50

Q-Cells High-Efficiency Back Junction Solar Cell for Large-Scale Production(tentative)

J. Müller (Q-Cells AG)

14:50-15:05

Short presentation (10 minutes presentation, 5 minutes discussion)

Elkem Solar finalizing 5000 MT plant for metallurgical route SOG Si

R. Tronstad (Elkem Solar)

15:05-15:20

Fundamental study toward engineering of microstructures in multicrystalline Si

N. Usami, K. Kutsukake, K. Fujiwara, and K. Nakajima (Tohoku Univ)

15:20-15:35

High speed diagnosis of wafer quality for solar cells by photoluminescence imaging

H. Sugimoto, K. Yoshida, M. Tajima (JAXA)

15:35-15:50

Processes for over 18% Efficiency Multi-Crystalline Silicon Solar Cell

H. Morikawa (Mitsubishi Electric Corporation)

15:50-16:05

Coffee Break

Session 3

16:05-16:45

Si Thin-Film Solar Cells

New Perspectives on the Nature of the Light Induced Changes in a-Si:H Solar Cells and Materials

C.R.Wronski (Penn State Univ)

16:45-17:25

Device modelling: a tool for determining areas of further improvements in solar-cell performance

M. Zeman (Delft Univ of Tech)

17:25-18:05

Mapping electronic properties of thin films for solar cells with nanometer resolution

A. Fejfar (Academy of Sciences of the Czech Republic)

Short presentation (10minutes presentation, 5minutes discussion)

18:05-18:20

Nano-area I-V characteristics in thin film Si solar cells

18:20-18:35 S.Nonomura (Gifu Univ)
"W-textured" SnO₂:F Substrate for Tandem Si Thin Film Solar Cells
T.Oyama, N.Taneda, M. Kambe, K.Masumo and K.Sato (Asahi Glass)

18:45 *Reception*

March 7, Friday

Session 4 *CIGS and Related Issues*
9:30- 10:10 **High efficient CIS Modules': Status and R&D Challenges**

M. Powalla (ZSW)

10:10-10:50 **CIGS Cells and Manufacturing in the US**
J.R.Sites (Colorado State Univ)

10:50-11:10 *Coffee Break*

11:10-11:25 **Short presentation** (10minutes presentation, 5minutes discussion)
**How much we could understand the CIS ?
for further improvement of the efficiency.**

K. Kushiya(Showa Shell)

11:25-11:40 **Mass-Production Technology for CIGS Modules**
K.Matsunaga, T.Komaru, Y.Nakayama (Honda Engineering) T.Kume, Y.Suzuki(Honda Soltec)

11:40-13:00 *Lunch*

Session 6 **Manufacturing of Si Thin-Film Solar Cells**
13:00-13:40 **Advances in amorphous and microcrystalline silicon photovoltaic**
S.Guha (United Solar Ovonic Corporation)

13:40-13:55 **Short presentation** (10minutes presentation, 5minutes discussion)
Advanced Light Trapping of Thin Film Si Solar Cell

K. Yamamoto and M. Ichikawa (Kaneka)

13:55-14:10 **High-efficiency Large-area a-Si/ μ -Si Tandem Solar Cell Module Production**
Y. Yamauchi(MHI)

14:10-14:25 **Manufacturing of Flexible Film Solar Cells**
A. Takano (Fuji Electric Systems Co., Ltd.)

14:25-14:40 **Thin Film Silicon Cell and Module Applications**
K.Nomoto (Sharp)

14:40-15:00 *Coffee Break*

Session 7 *Performance Measurements & System Related Issues*
15:00-15:40 **Precision Performance Measurements of PV Cells and Modules at AIST**
Y. Hishikawa (AIST)

15:40-16:10 **Computational Analysis and Data Mining of Photovoltaic Power Generation System**
S. Wakao (Waseda Univ)

16:00-16:15 **Short presentation** (10minutes presentation, 5minutes discussion)
A macroscopic evaluation result of Photovoltaic system on the field test project for photovoltaic in Japan
T. Oozeki, T. Yamada, and K. Kato (AIST)

Session 8 **Closing Session**
16:15-16:55 **Status and Perspectives of Thin Film Solar Cell Production Worldwide(tentative)**
A. Jager-Waldau (European Commission DC JRC)

16:55-17:35 **Current Status and Prospects of Photovoltaics in Japan**
I. Kaizuka, O. Ikki, T. Ohigashi and H. Matsukawa