



2nd International Workshop on the
Sustainable Actions for “Year by Year Aging” under Reliability
Investigations in Photovoltaic Modules, 2017

SAYURI-PV 2017

Agenda

Date: November 11th – 12th, 2017

Venue: Ryukoku University, Seta Campus (Building 8)
1-5 Yokotani, Seta Oe-cho, Otsu, Shiga 520-2194, JAPAN
<http://www.ryukoku.ac.jp/english2/about/access/seta.html>

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Yuzuru Ueda Masaaki Yamamichi

Host

Research Center for Photovoltaics (RCPV)
in National Institute of Advanced Industrial Science and Technology (AIST)

This workshop is held under the auspices of The Japan Electrical Manufacturers' Association (JEMA).

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[Day 1] November 11th

- 9:30- Opening Remarks Yasuaki Ishikawa (NAIST)
- 9:35- Welcome Koji Matsubara (AIST)
- 9:40- Welcome Takahiro Wada (Ryukoku Univ.)

Session I: Keynote (Field Experience) Chair: Yasuaki Ishikawa (NAIST)

- 9:45- Annual degradation rates of recent crystalline silicon PV modules and a study of the energy rating standard for PV modules under subtropical coastal climatic conditions
Tetsuyuki Ishii¹ and Atsushi Masuda² (1CRIEPI, 2AIST)

Session II: Cell (1) Chairs: Keiichiro Sakurai (AIST) and Yasuo Chiba (AIST)

- 10:30- What is the potential-induced degradation? -Systematic study on various kinds of photovoltaic cells-
Atsushi Masuda¹ and Keisuke Ohdaira² (1AIST, 2JAIST)
- 11:00- Internal quantum efficiency mapping for evaluation of rear side of solar cells
Toshimitsu Mochizuki (AIST)
- 11:30- Dry heat testing under light irradiation of CIGS solar cells
Jiro Nishinaga and Hajime Shibata (AIST)

11:50- Lunch [Self Pay]

Cell (2) Chair: Hajime Shibata (AIST) and Tadanori Tanahashi (AIST)

- 13:00- Integrated measurement of electroluminescence and current-voltage characteristics of photovoltaic modules
Takashi Fuyuki¹, Hiroshi Taniguchi², Yoshiteru Nitta², Kohji Masuda², Yasunori Uchida², and Tadashi Obayashi² (1Active Solar Innovation, 2JET)

Session III: Metallization Chairs: Tadashi Obayashi (JET) and Tadanori Tanahashi (AIST)

- 13:30- Reliability of PERC solar modules from cell metallization prospective
Marwan Dhamrin, Shota Suzuki, Morishita Naoya, Masahiro Nakahara, and Yoshiki Hasizume (Toyo Aluminium)
- 14:00- Degradation behavior of electrical contacts with acetic acid in c-Si PV cells
Tadanori Tanahashi, Yukiko Hara, Norihiko Sakamoto, Hajime Shibata, and Atsushi Masuda (AIST)
- 14:30- Corrosion mechanism on the interfacial glass layer between the metallization and the Si wafer of silicon solar cells by high-temperature high-humidity test
Taeko Semba¹, Takeo Shimada¹, Kazuyoshi Yamada¹, Katsuhiko Shirasawa², and Hidetaka Takato² (1Namics, 2AIST)

15:00- Break (30 min)

Session IV: Polymer (1) Chairs: Nick Bosco (NREL) and Atsushi Masuda (AIST)

- 15:30- The long-term life expectancy of 30 years of silicon PV module analyzed by laser technique
Yasuaki Ishikawa¹, Hiroataka Iida², and Hidenari Nakahama² (1NAIST, 2Nisshinbo Mechatronics)
- 16:00- The role of material interactions in PV module reliability
Gernot Oreski (PCCL)
- 16:45- Structural analysis of the degraded EVA encapsulant in crystalline silicon photovoltaic module using positron annihilation lifetime spectroscopy
Hideaki Hagihara, Hiroaki Sato, Yukiko Hara, Sachiko Jonai, and Atsushi Masuda (AIST)

17:15 End of 1st Day

18:00- Network Meeting

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[Day 2] November 12th

Session V: Polymer (2) Chairs: Gernot Oreski (PCCL), Takashi Ishihara (Mitsubishi Electric), and Tadanori Tanahashi (AIST)

- 9:00- Study on reliability and long-term durability of bifacial module in terms of comparison of transparent backsheet type with glass type
Keita Arihara¹, Ryosuke Koyoshi¹, Yasuhiro Ishii¹, Masaru Kadowaki¹, Atsushi Nakahara¹, Hitoshi Nishikawa¹, Kinichi Ogawa², Yasuo Chiba², and Atsushi Masuda² (1Dai Nippon Printing, 2AIST)
- 9:20- Impact of backsheet quality on PERC module reliability
Yoshiki Hasizume, Marwan Dhamrin, Sakamoto Hiroyuki, and Maeda Daisuke (Toyo Aluminium)
- 9:50- (PV module field failure in Thailand)
Manit Seapan (KMUTT)
- 10:20- Short-term and long-term field failures related to PV encapsulant in Japan
Tsuyoshi Shioda (Mitsui Chemicals)
- 10:50- Quantifying adhesion in PV modules: A historical survey and degradation processes
Nick Bosco (NREL)

11:20- Break (30 min)

Session VI: General Discussion Chair: Masaaki Yamamichi (RTS Corp.)

- 11:50- JP efforts for PV-reliability standardization
Isao Yoshida (JEMA)
- 12:05- **GENERAL DISCUSSION:**
Theme: Feasibility of “service lifetime prediction” (based on “durability / aging of materials”)
Moderators: Yasuaki Ishikawa, Tadanori Tanahashi, and Tsuyoshi Shioda

- 12:50- Closing Remarks Yasuaki Ishikawa (NAIST)

13:00 Adjourn

18:00- PVSEC-27: Welcome Reception at Lake Biwa Otsu Prince Hotel