

International Workshop on the Sustainable Actions for “Year by Year Aging” under Reliability Investigations in Photovoltaic Modules, 2016 (SAYURI-PV 2016)		
Poster Session : [Day 1] October 4th		
P-01	Influence of volcanic ash fall on generated energy from photovoltaic modules	Tadashi Hirayama ¹ , Takumi Tashima ¹ , Shuma Kawabata ¹ , Akihito Hirai ² , Yukio Yoshimura ³ , and Atsushi Masuda ⁴ (¹ Kagoshima Univ., ² Central Automotive Products, ³ Kagoshima Prefectural Institute of Industrial Technology, ⁴ AIST)
P-02	The measurement technology of PV module temperature in PV system field	Hiromi Tobita, Hirofumi Shinohara, Hisayuki Miura, and Takeshi Furutani (JET)
P-03	Study of carrier lifetime measurement methods for PID tested module	Kazuki Noguchi ¹ , Mohammad Aminul Islam ¹ , Takuya Oshima ¹ , Yasuaki Ishikawa ¹ , Hidenari Nakahama ² , and Yukiharu Uraoka ¹ (¹ NAIST, ² Nisshinbo Mechatronics)
P-04	The influence of the temperature on EL intensity of the PID tested Si PV modules	Takuya Oshima, Mohammad Aminul Islam, Kazuki Noguchi, Yasuaki Ishikawa, and Yukiharu Uraoka (NAIST)
P-05	Potential-induced degradation and recovery process for thin-film Si photovoltaic modules	Yukiko Hara and Atsushi Masuda (AIST)
P-06	Progression behavior of the potential-induced degradation of n-type c-Si-wafer-based photovoltaic modules with a front-side p ⁺ emitter	Seira Yamaguchi ¹ , Atsushi Masuda ² , and Keisuke Ohdaira ¹ (¹ JAIST, ² AIST)
P-07	Analysis of cross-section between cell and interconnector in field-aged photovoltaic modules	Tomoyuki Hirooka ¹ , Kohji Masuda ² , Yasunori Uchida ² , and Tadashi Obayashi ² (¹ Kusumoto Chemicals, ² JET)
P-08	Combined test of UV irradiation and highly accelerated hygrothermal treatment for photovoltaic modules using light source with high intensity	H. Morita ¹ , M. Terada ¹ , Y. Oka ¹ , K. Mori ¹ , and A. Masuda ² (¹ Toray Industries, ² AIST)
P-09	Developing an acetic acid detection sensor for photovoltaic modules using a pH-sensitive fluorescent dye	H. Nagasaki ¹ , T. Itayama ¹ , K. Iwami ¹ , C. Yamamoto ² , Y. Hara ² , A. Masuda ² , and N. Umeda ¹ (¹ TUAT, ² AIST)
Poster Session : [Day 2] October 5th		
P-10	Unexplained causes of the most frequent degradation mode of crystalline silicon photovoltaic modules	Sadao Sakamoto and Atsushi Masuda (AIST)
P-11	Fast measurement system for operating strings in Yoshinogari mega solar power plant	Shigeomi Hara and Makoto Kasu (Saga Univ.)
P-12	Analysis of long term operational data in residential photovoltaic systems	Hajime Wakabayashi and Kohji Masuda (JET)
P-13	Study of potential induced degradation and recovery of c-Si module	Mohammad Aminul Islam ¹ , Kazuki Noguchi ¹ , Takuya Oshima ¹ , Hirotaka Iida ² , Yasushi Takagi ² , Yasuaki Ishikawa ¹ , and Hidenari Nakahama ² (¹ NAIST, ² Nisshinbo Mechatronics)
P-14	Activation of surface recombination at a SiN _x /n-type c-Si interface after potential-induced degradation	Naoyuki Nishikawa, Seira Yamaguchi, and Keisuke Ohdaira (JAIST)
P-15	Potential-induced degradation for silicon heterojunction photovoltaic modules	Chizuko Yamamoto ¹ , Seira Yamaguchi ² , Keisuke Ohdaira ² , and Atsushi Masuda ¹ (¹ AIST, ² JAIST)
P-16	Mechanism of potential-induced degradation for p-type crystalline silicon photovoltaic modules	Sachiko Jonai, Hideaki Hagihara, Hiroaki Sato, and Atsushi Masuda (AIST)
P-17	Testing procedures including damp heat and thermal cycle processes for highly reliable photovoltaic modules	Kohji Masuda, Yasunori Uchida, and Tadashi Obayashi (JET)
P-18	Detecting acetic acid in photovoltaic modules through changes in the relative reflectance of tin films	T. Itayama ¹ , H. Nagasaki ¹ , K. Iwami ¹ , C. Yamamoto ² , Y. Hara ² , A. Masuda ² , and N. Umeda ¹ (¹ TUAT, ² AIST)
P-19	The study of IV characteristic, EL image, internal wiring and cell cross section of PV modules, which were exposed to outside for over 20 years	Tadashi Obayashi (JET)
P-20	Introduction of JET O&M certification	Tadashi Obayashi (JET)




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SAYURI-PV 2016

Agenda

Date:
 Venue:

October 4th – 5th, 2016
 Auditorium in AIST Tsukuba Central Campus
 Central 1, 1-1-1 Higashi, Tsukuba, Ibaraki 305-8561, JAPAN

Organizing Committee		
Chair:	Koji Matsubara Atsushi Masuda Tadanori Tanahashi	Keiichiro Sakurai Masaaki Yamamichi
Program Committee		
Chair:	Tadanori Tanahashi Takashi Ishihara Atsushi Masuda Hidenari Nakahama Tadashi Obayashi Takamizu Sasaki Akihiro Takano Shuji Tokuda Masaaki Yamamichi	Yasuaki Ishikawa Toshiharu Minamikawa Akihiko Nakajima Keisuke Ohdaira Michio Shibata Kazufumi Tanaka Yuzuru Ueda Isao Yoshida Shuma Kawabata Kengo Morita Shuichi Nonomura Keiichiro Sakurai Tsuyoshi Shioda Miki Terada Norihiro Umeda
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.

International Workshop on the Sustainable Actions for “Year by Year Aging” under Reliability Investigations in Photovoltaic Modules, 2016 (SAYURI-PV 2016)			
[Day 1] October 4th			
9:30-	Registration		
10:00-	Opening (O-01)	Tadanori Tanahashi	(AIST)
10:05-	Welcome (O-02)	Koji Matsubara	(AIST)
Session I:	Keynote	Chair: Masaaki Yamamichi	(AIST)
10:15-	PV challenge in JP (O-03)	Takamizu Sasaki	(NEDO)
Session II:	Field Experiences for PV Reliability Research	Chair: Keiichiro Sakurai	(AIST)
		Hui Shen	(Changzhou Trina Solar)
10:45-	Correlation between visual defects and environmental conditions in 68 photovoltaic systems in Japan (O-04)		
		Kohji Masuda	(JET)
11:15-	PV reliability as addressed in IEA PVPS Task 13 (O-05)		
		Ulrike Jahn ¹ , Magnus Herz ¹ , Marc Köntges ² , Karl. A. Berger ³	(¹ TÜV Rheinland, ² ISFH, ³ AIT GmbH)
11:45-	Investigation of the quality of recent photovoltaic modules under actual operating conditions (O-06)		
		Tetsuyuki Ishii ¹ , Ritsuko Sato ² , Sungwoo Choi ² , Yasuo Chiba ² , and Atsushi Masuda ²	(¹ CRIEPI, ² AIST)
12:15-	Lunch [Self Pay] & Poster Session (90 min)		
Session III:	Novel Test Protocols-1	Chair: Atsushi Masuda	(AIST)
	(Acceleration Tests)	Tadashi Obayashi	(JET)
13:45-	Proposed new damp heat test standards for thin film PV modules (O-07)		
		Keiichiro Sakurai ¹ , Akihiro Takano ² , Hiroshi Tomita ³ , Kinichi Ogawa ¹ , Darshan Schmitz ³ , Hajime Shibata ¹ , Shuji Tokuda ³ , and Atsushi Masuda ¹	(¹ AIST, ² FWAVE Co., LTD., ³ Solar Frontier K.K.)
14:15-	Permanent damage from partial shade in monolithic thin-film modules (O-08)		
		Timothy Silverman	(NREL)
14:45-	Acceleration of degradation by HAST and air-HAST in c-Si PV modules (O-09)		
		Tadanori Tanahashi ² , Soh Suzuki ¹ , Takuya Doi ² , and Atsushi Masuda ²	(¹ ESPEC CORP., ² AIST)
15:15-	The influence of different climate on module’s performance (O-10)		
		Hui Shen, Qiangzhong Zhu, Zhichao Ji, Jianmei Xu, Pierre J. Verlinden, Wei Zhou, Zhiqiang Feng	(Changzhou Trina Solar Energy Co., Ltd.)
15:45-	Coffee Break (30 min)		
Session IV:	Novel Test Protocols-2	Chair: Hidenari Nakahama	(Nisshinbo Mechatronics)
	(PID)	Christos Monokroussos	(TÜV Rheinland, Shanghai)
16:15-	A characterization by using laser-based technique for failure Si PV modules (O-11)		
		Y. Ishikawa ¹ , M. A. Islam ¹ , K. Noguchi ¹ , H. Iida ² , Y. Takagi ² , and H. Nakahama ²	(¹ NAIST, ² Nisshinbo Mechatronics)
16:45-	Potential-induced degradation of n-type crystalline silicon photovoltaic modules (O-12)		
		Keisuke Ohdaira ¹ , Seira Yamaguchi ¹ , Chizuko Yamamoto ² , Kohjiro Hara ² , and Atsushi Masuda ²	(¹ JAIST, ² AIST)
17:15-	PID in thin-film PV modules and PID standards development (O-13)		
		Peter Hacke	(NREL)
17:45	End of 1st Day		
18:00-	Banquet		

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[Day 2] October 5th			
9:00-	Registration		
Session V:	Cells, Materials, and Components	Chair: Timothy Silverman	(NREL)
		Michio Shibata	(DuPont K. K.)
9:30-	Degradation mechanisms of c-Si PV cells exposed to acetic acid vapor (O-14)		
		Tadanori Tanahashi, Norihiko Sakamoto, Hajime Shibata, Yukiko Hara, and Atsushi Masuda	(AIST)
10:00-	PV modules' reliability deployed in Japanese PV power plant from viewpoint of encapsulant (O-15)		
		Tsuyoshi Shioda	(Mitsui Chemicals)
10:30-	IEC standardization of BD thermal runaway test (O-16)		
		Yasunori Uchida	(JET)
11:00-	Coffee Break (30 min)		
Session VI:	Novel Test Protocols-3	Chair: Peter Hacke	(NREL)
	(Sequential Tests and Others)	Kohji Masuda	(JET)
11:30-	Sequential and combined acceleration tests for physical and mechanical stresses in crystalline Si photovoltaic modules (O-17)		
		Atsushi Masuda ¹ , Chizuko Yamamoto ¹ , Naomi Uchiyama ¹ , Kiyoshi Ueno ² , Toshiharu Yamazaki ² , Kazunari Mitsuhashi ³ , Akihiro Tsutsumida ³ , Jyunichi Watanabe ³ , Jyunko Shirataki ³ , and Keiko Matsuda ³	(¹ AIST, ² Choshu Industry Co., Ltd., ³ Toray Research Center, Inc.)
12:00-	Effects of hygrothermal environment on PID acceleration for crystalline Si photovoltaic modules (O-18)		
		Yasushi Tachibana ¹ , Takeshi Toyoda ¹ , Toshiharu Minamikawa ¹ , Yukiko Hara ² , and Atsushi Masuda ²	(¹ IRII, ² AIST)
12:15-	Na migration process in crystalline Si photovoltaic modules by potential induced degradation test (O-19)		
		Fumitaka Ohashi ¹ , Hiroki Yoshida ¹ , Yukiko Hara ² , Atsushi Masuda ² , Shuichi Nonomura ¹	(¹ Gifu Univ., ² AIST)
12:30-	Characterization of PID acceleration for crystalline Si solar cell modules using a laser terahertz emission microscope (LTEM) (O-20)		
		Hidetoshi Nakanishi ¹ , Fujikazu Kitamura ¹ , Kiyotaka Matsuo ¹ , Minoru Mizubata ¹ , Iwao Kawayama ² , Masayoshi Tonouch ² , Katsuhiko Shirasawa ³ , Toshimitsu Mochizuki ³ , Hidetaka Takato ³	(¹ SCREEN Holdings, ² Osaka Univ. ³ AIST)
12:45-	Lunch [Self Pay] & Poster Session (105 min)		
Session VII:	Practical Issues in PV Reliability	Chair: George Kelly	(IEC TC82)
		Isao Yoshida	(JEMA)
14:30-	Long term performance analysis of various PV modules in Hokuto mega-solar (O-21)		
		Yuzuru Ueda	(Tokyo Univ. of Science)
15:00-	Reliability of power rating and labeling (O-22)		
		Christos Monokroussos, Kengo Morita and Werner Herrmann	(TÜV Rheinland Group)
15:30-	Challenges to overcome before spreading BIPV system (O-23)		
		Akihiko Nakajima	(KANEKA)
Session VIII:	Standardization	Chair: Masaaki Yamamichi	(AIST)
16:00-	Coordination of international standards with implementation of the IEC RE conformity assessment system (O-24)		
		George Kelly	(IEC TC82 Secretariat)
16:30-	General Discussion & Closing Remarks (O-25)	Tadanori Tanahashi	(AIST)
17:00	Wrap up		