Program at a Glance

PVSEC19 Program at a Glance

- **Room1 (Tamna A):** Opening Lecture, CSI1-8, NMD2,4, PMS6
- **Room2 (Samda):** ASI1-9, CSP1-2
- **Room3 (Halla A):** CIG1-8, NMD3,5,6
- **Room4 (Halla B):** DSC1-7, OSC1-4
- **Room5 (402):** NMD1, TPV1, PMS1-5, TPV2+PIM1, PIM2-4

- **CSI** Crystalline Silicon Solar Cells and Technologies
- **ASI** Amorphous and Nano/Microcrystalline Silicon Based Solar Cells and Related Materials
- **CIG** CIGS, II-VI and Related Thin Films and Solar Cells
- **CSP** III-V Materials and Devices for Concentrator and Space PV Systems
- **DSC** Dye-sensitized Solar Cells and Related Materials
- **OSC** Organic Solar Cells and Related Materials
- **NMD** Novel Materials and Devices
- **PMS** PV Modules and System Components Including Testing and Reliability
- **TPV** Terrestrial PV Systems
- **PIM** PV Programs, Industries, Market, and Environment

nber 9 (Mon)			November 10 (Tue)						November 11 (Wed)						November 12 (Thu)						November 13 (Fri)				
R3	R4	R5	R1	R2	R3	R4	R5		R1	R2	R3	R4	R5		R1	R2	R3	R4	R5		R1	R2	R3	R4	R5
ture (M.Yamaguchi), '1 (R.Swanson)			Plenary4 (M.Kondo), Plenary5 (T.Nakada)						Plenary6 (V.Garboushian), Plenary7 (M.Grätzel)						Plenary8 (A.Heeger), Plenary9 (M.A.Green)						Plenary10 (J.Wohlgemuth), Plenary11 (F.Ishida)				
Break			Break					P1: CSI, DSC	Break					P3: ASI, CIG	Break					P5: ASI, DSC, PIM	Break				
g Ceremony, ward Lecture			NMD2	ASI2	CIG2	OSC1	TPV1		CSI4	CSP1	NMD3	OSC2	PMS3		CSI6	CSP2	CIG7	OSC3	PMS5		PMS6	ASI9	CIG8	DSC7	PIM4
Lunch			Lunch						Lunch						Lunch						Closing Session (12:30-13:30)				
'2 (S.W.Glunz), los van der Hyden)			CSI2	ASI3	CIG3	DSC2	PMS1		CSI5	ASI5	CIG5	DSC4	PMS4		CSI7	ASI7	NMD5	OSC4	PIM2						
Break			Break					P2: CSP, NMD, OSC	Break					P4: CSI, OSC, TPV	Break					P6: CIG, PMS					
CIG1	DSC1	NMD1	CSI3	ASI4	CIG4	DSC3	PMS2		NMD4	ASI6	CIG6	DSC5	TPV2 + PIM1		CSI8	ASI8	NMD6	DSC6	PIM3						
									Break																
									Conference Banquet Crystal Ballroom of Lotte Hotel Jeju 19:00-21:00																

ome Reception will be held at ICC on November 8, Sunday.
itor Welcome Reception: November 9, Monday 17:30~19:00, ICC Jeju Exhibition Hall 1F
itor Promoting Reception: November 10, Tuesday 17:30~19:00, ICC Jeju Exhibition Hall 1F

Poster presentation

Poster presentation	
P1	CSI, DSC
P2	NMD, OSC, CSP
P3	ASI, CIG

P4	CSI, OSC, TPV
P5	DSC, ASI, PIM
P6	CIG, PMS

- Morning poster shoud be attached at 9:00 am.
- Afternoon poster shoud be attached at 2:00 pm.

Welcome Reception

November 8, Sunday 18:00 - 20:00, The Delizia restaurant (ICC 3F)

Closing Session

November 13, Friday 12:30 ~ 13:30

Side Events

Side Events	Date	Room
Tutorial	November 8, Sunday	201
Korea-Japan Workshop on PV Future Direction	November 8, Sunday	302
IEA/PVPS	November 10, Tuesday	401
PV Industry forum	November 10, Tuesday	203

- Please refer to Side Events for further details.

Orals

Area 1 : Crystalline Silicon Solar Cells and Technologies

Presentation No.	Abstract No.	Corresponding author	Title
CSI1: 11/9 (Mon) 16:00-17:45			**Chair: JunSin Yi (Sungkyunkwan Univ.)**
CSI1-I-1	CSI-I-05	Uwe Rau	Generalized detailed balance theory of solar cells and applications to electroluminescence analysis of solar cells and solar modules
CSI1-I-2		Peter Fath	New selective emitter technology for industrial silicon solar cell production
CSI1-O-2	CSI-O-18	Chel-Jong Choi	Two-dimensional dopant distribution in textured crystalline silicon solars cell with n+/p junctions
CSI1-O-3	CSI-O-03	P. Rosenits	DETERMINING THE EPITAXIAL CARRIER LIFETIME OF CRYSTALLINE SILICON THIN-FILM MATERIAL
CSI1-O-4	CSI-O-02	Takahiro Mishima	Development Status of High efficiency HIT solar cells
CSI2: 11/10 (Tue) 14:00-15:30			**Chair: EunChel Cho (Hyundai Heavy Inc.)**
CSI2-I-1	CSI-I-04	Nils-Peter Harder	Development of Back-Contacted Solar Cells at ISFH
CSI2-O-1	CSI-O-36	Dongchul Suh	Industrial screen-printed metal wrap through multicrystalline silicon solar cells exceeding 17% efficiency
CSI2-O-2	CSI-O-35	YoungHo Choe	High Efficiency Interdigitated Back Contact Si Solar Cell
CSI2-O-3	CSI-O-16	Machteld Lamers	17+% BACK-CONTACTED CELLS RESULTING IN NEW WORLD RECORD MODULE EFFICIENCY OF 16.4%
CSI2-O-4	CSI-O-11	In-Sik Moon	Optimization of the front side contact design for MWT (Metal Wrap Through) solar cells
CSI3: 11/10 (Tue) 16:00-17:30			**Chair: Nils-Peter Harder (ISFH)**
CSI3-I-1	CSI-I-03	Pierre Saint-Cast	ADVANCE ANALYTICAL MODELS OF LOSSES CALCULATIONS ON PERC STRUCTURE
CSI3-O-1	CSI-O-43	Filip Granek	First results with combining Laser Chemical Processing and Aerosol Jet Printing for high efficiency front side structures of silicon solar cells
CSI3-O-2	CSI-O-34	Nino Borojevic	Development of Inkjet Texturing for Multicrystalline Silicon Laser Doped Selective Emitter Solar Cells
CSI3-O-3	CSI-O-33	Michael Reuter	NOVEL PROCESS FOR FULL PASSIVATED BACK SIDE WITH LOCAL CONTACTS
CSI3-O-4	CSI-O-30	Homer Antoniadis	Silicon Inkjet Printed 18% Solar Cells
CSI4: 11/11 (Wed) 11:00-12:30			**Chair: Larry Wang (Evans Analytical Group)**
CSI4-I-1	CSI-I-07	K. Baert	A roadmap for crystalline Si solar cells
CSI4-O-1	CSI-O-45	Moon Hee Kang	Understanding the high efficiency silicon solar cells fabricated with Silane-free PECVD SiC_xN_y as antireflection coating
CSI4-O-2	CSI-O-32	C. W. Liu	Passivation of solar cell by Plasma Immersion Ion Implantation
CSI4-O-3	CSI-O-23	Stanley Wang	THE USE OF PECVD SILICON OXYNITRIDE AS THE PASSIVATION LAYER FOR PHOSPHORUS DIFFUSED P-TYPE SUBSTRATES
CSI4-O-4	CSI-O-12	Yusuke Shirayanagi	Investigation of SiO_x:H films for using as rear side passivation layer of crystalline silicon solar cells
CSI5: 11/11 (Wed) 14:00-15:30			**Chair: Kris Baert (IMEC)**
CSI5-O-1	CSI-O-50	Marwan Dhamrin	Acceptable Thresholds of Electrically Active Metal Impurities in Solar Grade Silicon
CSI5-O-2	CSI-O-48	Yasuaki Iwata	Analysis of Interaction between Impurities and Structural Defects in Multicrystalline Silicon by Photoluminescence
CSI5-O-3	CSI-O-46	Marwan Dhamrin	Impact of Nickel Impurity on Multicrystalline Silicon Solar Cell Performance; “How Much Nickel Can We Allow in Solar Grade Silicon?”
CSI5-O-4	CSI-O-28	Naohisa Iwamoto	A Study on Fixed Abrasive Diamond Wire Saw Slicing of mono- and multi-crystalline Silicon Ingots for Photovoltaic Applications
CSI5-O-5	CSI-O-27	Larry Wang	SOLAR GRADE Si IMPURITY EVALUATION USING GDMS AND SIMS
CSI5-O-6	CSI-O-22	Tadashi Saitoh	Status and Expectation of Multi-wire Slicing using Diamond-fixed Abrasives for Cost-effective c-Si Solar Cells
CSI6: 11/12 (Thu) 11:00-12:30			**Chair: Deren Yang (Zhejiang University)**
CSI6-O-1	CSI-O-42	Chun Gong	Another approach to form p+ emitter for Cz rear junction n-type solar cells: above 17% efficiency cells with CVD boron-doped epitaxial emitter
CSI6-O-2	CSI-O-17	BT Chan	Reducing surface reflectivity below 8% by nano-features on random pyramid textured silicon wafer
CSI6-O-3	CSI-O-15	Yu Qiu	N-Type Thin-Film Polycrystalline-Silicon Solar Cells Based on SEEDLAYER OVERDOPING AND LPCVD ThICKENING

CSI6-O-4	CSI-O-10	Thipwan Fangsuwannarak	Investigation of low temperature Al alloy infiltrating into SiN_x/*a*-Si layer for effective rear localized contacts
CSI6-O-5	CSI-O-09	Hee Young Kim	FLUIDIZED-BED SILICON DEPOSITION REACTOR WITH HIGH PRODUCTIVITY
CSI6-O-6	CSI-O-05	Deren Yang	Copper precipitation in different defects density regions in multicrystalline silicon
CSI7: 11/12 (Thu) 14:00-15:30			**Chair: DaeWon Kim (Hyosung Co.)**
CSI7-I-1	CSI-I-01	Ronald A. Sinton	Contactless Measurement of Carrier Lifetime on As-Grown or Shaped Ingots, Sections, and Blocks
CSI7-O-1	CSI-O-51	Sang Hyun Park	Surface Passivation Characteristics of a-Si:H / c-Si depending on Interface Structures for High Efficiency Heterojunction Solar Cells
CSI7-O-2	CSI-O-37	Markus Glatthaar	EVALUATION OF VOLTAGE CALIBRATED ELECTRO- AND PHOTOLUMINESCENCE IMAGES OF SILICON SOLAR CELLS
CSI7-O-3	CSI-O-21	Kentaro Kutsukake	Quantitative Analysis of Defects and Microstructures in Si Multicrystals Using X-ray Diffraction
CSI7-O-4	CSI-O-19	Yoshio Ohshita	Recombination velocities at grain boundaries in cast-grown polycrystalline silicon
CSI8: 11/12 (Thu) 16:00-17:30			**Chair: Ronald Sinton (Sinton Instruments)**
CSI8-I-1	CSI-I-06	Deren Yang	GERMANIUM DOPED SILICON FOR SOLAR CELLS
CSI8-O-1	CSI-O-40	Takashi Ishihara	Large Size Multi-Crystalline Silicon Solar Cells with Honeycomb Textured Surface and Point Contact toward Industrial Application
CSI8-O-2	CSI-O-29	Dong-Sing Wuu	Processing Effects and Simulation Correlation in Silicon Back Contact Solar Cells
CSI8-O-3	CSI-O-13	Weiming Zhang	Overcoming Road Blocks of High Sheet Emitter by Front Side Ag Paste Development and Implementation
CSI8-O-4	CSI-O-07	SACHIYO OOKA	OVER 18% EFFICIENCY 100 MICROMETER THICK MULTI-CRYSTALLINE SILICON SOLAR CELL WITH SCREEN-PRINTED FRONT ELECTRODE

Area 2 : Amorphous and Nano/Microcrystalline Silicon Based Solar Cells and Related Materials

Presentation No.	Abstract No.	Corresponding author	Title
ASI1: 11/9 (Mon) 16:00-17:30			**Chair: Heon-Min Lee (LG)**
ASI1-O-1	ASI-O-66	Channarong Piromjit	ZnO interface layer and CO2 plasma treatment for improving efficiency of micromorph silicon solar cells
ASI1-O-2	ASI-O-68	Ji Eun Lee	Analysis of ZnO:Al/buffer/p a-SiC:H interface properties for high efficiency a-Si:H based multi-junction solar cell applications
ASI1-O-3	ASI-O-63	Haijun Jia	Highly-transparent textured Ga doped ZnO films with strong light trapping capability for thin film solar cells
ASI1-O-4	ASI-O-54	Kunio Masumo	Characterization of W-texture SnO_2:F TCO substrates by light scattering angle distribution measurement
ASI1-O-5	ASI-O-50	Hitoshi Sai	Light trapping effect of front and rear textures in thin-film microcrystalline silicon solar cells
ASI1-O-6	ASI-O-21	Min-Koo Han	Effect of ITO seed layer on ZnO:Al Transparent Conductive Oxide for thin film multi-junction silicon solar cells
ASI2: 11/10 (Tue) 11:00-12:30			**Chair: R.E.I Schropp (Utrecht University)**
ASI2-O-1	ASI-O-55	Keisuke Ohdaira	Flash-lamp-crystallized Polycrystalline Silicon Films with Remarkably Long Minority Carrier Lifetimes
ASI2-O-2	ASI-O-19	Aswin Hongsingthong	Preparation of ZnO thin films using MOCVD technique with H_2O/D_2O gas mixture
ASI2-O-3	ASI-O-18	Jakapan CHANTANA	RELATIONSHIP BETWEEN $I_{H_\alpha}/(I_{SiH}^*)^2$ AND X_C IN MICROCRYSTALLINE SILICON FILMS
ASI2-O-4	ASI-O-16	Jeong-Woo Lee	Improvement of pin-type amorphous silicon solar cell performance by employing the structure of triple silicon carbide p-layers on Ga-doped ZnO film
ASI2-O-5	ASI-O-15	Yasushi Sobajima	Control of Optoelrctronic Properties Using Optical Emission Spectroscopy During Film Growth of Microcrystalline Si
ASI2-O-6	ASI-O-12	Sheng-Hui Chen	Hydrogen Concentration in Hydrogenated Silicon Thin Films Using Elastic Recoil Detection
ASI3: 11/10 (Tue) 14:00-15:30			**Chair: Sheng-Hui Chen (National Central Univ.)**
ASI3-I-1	ASI-I-13	R.E.I. Schropp	Flexible thin film silicon single junction, tandem, and triple junction cells on stainless steel and plastic foil
ASI3-O-1	ASI-O-67	Udai P. Singh	Recent Advances in Thin Film PV in India
ASI3-O-2	ASI-O-27	Ketut S. Astawa	Effect of Loading on Long Term Performance of single Junction Amorphous Silicon Modules
ASI3-O-3	ASI-O-20	Atsushi Masuda	Fabrication of flexible thin-film Si solar cells on textured polymer

			substrate
ASI3-O-4	ASI-O-17	Yasushi Sobajima	EFFECT OF POST-DEPOSITION ANNEALING ON MICROCLYSTALLINE-SI SOLAR-CELL PERFORMANCE

ASI4: 11/10 (Tue) 16:00-17:30 — **Chair: Arvind Shah (University of Neuchatel)**

ASI4-I-1	ASI-I-14	Reinhard Carius	Recent developments at the Research Center Jülich towards cost effective thin film silicon solar cells
ASI4-O-1	ASI-O-58	Heon-Min Lee	Annealing effect on surface passivation of a-Si:H/c-Si interface in terms of crystalline volume fraction
ASI4-O-2	ASI-O-43	Yoo Jin Lee	Polycrystalline silicon thin film solar cells processed by SALD and MIC
ASI4-O-3	ASI-O-25	Shunsuke Kasashima	Light Intensity Dependence of Amorphous Silicon Solar Cells
ASI4-O-4	ASI-O-05	Donghwan Kim	A study of crystallinity in amorphous Si thin films for crystalline silicon heterojunction solar cells

ASI5: 11/11 (Wed) 14:00-15:30 — **Chair: Reinhard Carius (Utrecht University)**

ASI5-I-1	ASI-I-05	Takuya Matsui	Microcrystalline $Si_{1-x}Ge_x$ thin film solar cells exhibiting large photocurrent densities
ASI5-O-1	ASI-O-34	Ihsanul Afdi Yunaz	Wide-Gap a-SiC:H Solar Cells with High Light-Induced Stability
ASI5-O-2	ASI-O-24	Bohwan Park	The process of an amorphous silicon germanium tandem module on a large area glass substrate
ASI5-O-3	ASI-O-23	Taweewat Krajangsang	Effect of p-μc-SiO:H Layer on Performance of Hetero-Junction Microcrystalline Silicon Solar Cells
ASI5-O-4	ASI-O-22	Kobsak Sriprapha	Development of thin film amorphous silicon oxide/microcrystalline silicon double-junction solar cells and their temperature dependence

ASI6: 11/11 (Wed) 16:00-17:30 — **Chair: Makoto Konagai (Tokyo Institute of Technology)**

ASI6-I-1	ASI-I-07	Arvind Shah	Thin-film silicon solar cells/modules : prospects and bottlenecks
ASI6-O-1	ASI-O-69	Se-Young Seo	The implication of Si/Si_3N_4 superlattice films for high efficient thin film photovoltaic devices
ASI6-O-2	ASI-O-56	Andy Shang-Yuan Hsieh	Investigation of Si/SiO_2 multilayer structures with 2nm Si sublayer thickness by reactive magnetron sputtering for selective energy contacts
ASI6-O-3	ASI-O-52	Jung-Ho Lee	Co-integration of Si nanowires and microwires for solarcell applications
ASI6-O-4	ASI-O-07		Cancelled

ASI7: 11/12 (Thu) 14:00-15:30 — **Chair: Michio Kondo (AIST)**

ASI7-I-1	ASI-I-09	Nong-Moon Hwang	Strategy of Deposition of Crystalline Silicon at Low Temperature for Solar Cell Applications Based on Two-Step Growth Mechanism of Chemical Vapor Deposition
ASI7-O-1	ASI-O-59	Mitsuoki Hishida	Original Localized Plasma Confinement CVD Technology by Sanyo
ASI7-O-2	ASI-O-33	Xiaojing Hao	Study on properties of si qds junction in oxide matrix for "all-silicon" tandem solar cells
ASI7-O-3	ASI-O-42	Dilip Chandra Ghimire	Synthesis of Carbon Nanotubes and Nanofibers by DC-plasma CVD for Photovoltaic Purpose
ASI7-O-4	ASI-O-40	Nong-Moon Hwang	Effect of electric bias on the deposition behavior of n-type microcrystalline silicon films prepared by hot-wire chemical vapor deposition

ASI8: 11/12 (Thu) 16:00-17:30 — **Chair: Nong-Moon Hwang (SNU)**

ASI8-I-1	ASI-I-12	F. Meillaud	Realization of high efficiency micromorph tandem silicon solar cells on glass and plastic substrates : issues and potential
ASI8-O-1	ASI-O-61	Jun-Sik Cho	Improvement of key factors for fabricating high quality tandem silicon thin film solar cells
ASI8-O-2	ASI-O-60	Takuya Matsui	High-efficiency low-degradation a-Si:H solar cell with improved light management
ASI8-O-3	ASI-O-45	Mathieu Boccard	Substrate dependent stability and interplay between optical and electrical properties in μc-Si:H single junction solar cells
ASI8-O-4	ASI-O-41	Pongpan Vorasayan	Spatially distributed model for thin film silicon solar cell performance analysis

ASI9: 11/13 (Fri) 11:00-12:30 — **Chair: HyungDong Kang (JUSUNG Engineering)**

ASI9-O-1	ASI-O-39	Grégory Bugnon	Microcrystalline and micromorph device improvements through combined plasma characterization techniques
ASI9-O-2	ASI-O-38	Nong-Moon Hwang	Effects of HCl gas and electric bias on microcrystalline silicon films deposited by hot-wire chemical vapor deposition
ASI9-O-3	ASI-O-35	Nong-Moon Hwang	Generation of Electric Charge and its Effect on Film Deposition during Hot-Wire Chemical Vapor Deposition of Silicon
ASI9-O-4	ASI-O-44	Hyung Dong Kang	Tungsten thin films prepared by chemical vapor deposition method applied as a back electrode in thin film solar cells

ASI9-O-5	ASI-O-29	Czang-Ho Lee	Process development of amorphous silicon/microcrystlline silicon tandem solar cells using conventional manufacturing PECVD system
ASI9-O-6	ASI-O-26	Minoru Karasawa	In-situ chamber cleaning by F_2 plasma for thin-film Si solar-cell fabrication

Area 3 : CIGS, II-VI and Related Thin Films and Solar Cells

Presentation No.	Abstract No.	Corresponding author	Title
CIG1: 11/9 (Mon) 16:00-17:30			**Chair: ByungTae Ahn (KAIST)**
CIG1-I-1	CIG-I-06	William Shafarman	Alloy Options for Wide Bandgap $CuInSe_2$-based Thin Film Solar Cells
CIG1-O-1	CIG-O-41	Cherng-Yuh Su	Preparation and Characterization of CIGS thin films by selenization of In/CuGa bi-layer and CuInGa single-layer metallic precursors
CIG1-O-2	CIG-O-21	William N. Shafarman	Ga and S homogenization by simultaneous H_2Se/H_2S reaction of Cu-Ga-In precursor
CIG1-O-3	CIG-O-29	Michael H.-C. Jin	Chalcogenization of Cu/In metallic precursor thin-films using amide derivatives for chalcopyrite thin-film solar cells
CIG1-O-4	CIG-O-37	Jyh-Ming Ting	In-situ sulfurized $CuInS_2$ absorption layers and the resulting solar cell performance
CIG2: 11/10 (Tue) 11:00-12:30			**Chair: Shigeru Niki (AIST)**
CIG2-O-1	CIG-O-08	Masahiro Kawamura	Interface and grain boundary evaluation of the CIGS solar cells
CIG2-O-2	CIG-O-06	Takashi Minemoto	Measurements of grain boundary character distribution in the surface of $Cu(In,Ga)Se_2$ thin film by Electron Backscatter diffraction Pattern
CIG2-O-3	CIG-O-32	Sho Shirakata	Near-band-edge photoluminescnce in $Cu(In,Ga)Se_2$ solar cells
CIG2-O-4	CIG-O-22	Larry Wang	Accurate SIMS quantification of Na in CIGS and impurities in CdTe based solar cell
CIG2-O-5	CIG-O-40	Jeong Dae Suh	Optical, morphological and structural properties of CIGS thin films by a single step evaporation process
CIG2-O-6	CIG-O-01	Takeaki Sakurai	Dependence of Se beam pressure on defect states in CIGS solar cells
CIG3: 11/10 (Tue) 14:00-15:30			**Chair: W. Shafarman (IEC)**
CIG3-I-1	CIG-I-05	S. Niki	High-Efficiency CIGS Solar Cells and Modules by Multi-Stage Evaporation
CIG3-O-1	CIG-O-19	Young Do Kim	Molybdenum back contact electrode for CIGS-Based solar cell by chemical vapor transport of $MoO_3(OH)_2$
CIG3-O-2	CIG-O-23	Jeung-hyun Jeong	The effect of interfacial adhesion improvement on controlling microstructure, stress, and electrical properties of Mo back contact
CIG3-O-3	CIG-O-24	Minhyon Jeon	Characterization of ZnO thin films and Ga doped ZnO thin films by post annealing for transparent conducting oxide application
CIG3-O-4	CIG-O-43	Yong Soo Cho	Effect of RF power and spatial variation of properties of ZnO:Al thin films grown by 30˚- incident RF magnetron sputtering for solar cell applications
CIG4: 11/10 (Tue) 16:00-17:30			**Chair: Jae Ho Yun (KIER)**
CIG4-O-1	CIG-O-44	Tsuyoshi Maeda	Phase stability and crystal structure of In-free photovoltaic semiconductor $Cu_2ZnSnSe_4$ studied by first-principles calculation, and x-ray and neutron diffraction analyses
CIG4-O-2	CIG-O-16	J.H. Kim	Electrosynthesis and charactization of Cu_2ZnSnS_4 (CZTS) thin films by single step electrodeposition method for solar cell application
CIG4-O-3	CIG-O-38	Shuying Cheng	Effect of anneal temperature on electrical and optical properties of SnS:Ag films
CIG4-O-4	CIG-O-15	Robert Miles	Thin Films of SnS for Application in Photovoltaic Solar Cell Devices
CIG4-O-5	CIG-O-25	K.Y. Rajpure	Studies on sprayed $CdIn_2O_4$ thin films from non-aqueous medium for solar cell application
CIG4-O-6	CIG-O-39	Jyh-Ming Ting	Chemical Synthesis of $Cu_2In_2O_5$ and $Cu_2In_{2-x}Ga_xO_5$ Nanoparticles
CIG5: 11/11 (Wed) 14:00-15:30			**Chair: Neel G. Dhere (Florida Solar Energy Center)**
CIG5-O-1	CIG-O-03	SEOKHYUN YOON	Surface modification of CIGS absorber layer from nanoparticle-based approach
CIG5-O-2	CIG-O-35	Jyh-Ming Ting	Sintering of solvothermal-synthesized $CuInSe_2$ powders
CIG5-O-3	CIG-O-30	Kyunghoon Yoon	Compositional and structural study on $CuInGaSe_2$ thin films prepared by a non-vacuum solution coating technique

CIG5-O-4	CIG-O-17	Myoung-Woon Moon, Choel Woong Yang	Nano-dots Evolved on Cu(Ga, In)Se_2 Thin Film by Ion Beam Irradiation
CIG5-O-5	CIG-O-13	Sam Yoon	CIS Thin Film Deposition via Electrostatic Spray Technique
CIG5-O-6	CIG-O-11	Yiwen Zhang	Cu(InGa)Se_2 absorber layer fabricated by non-vacuum, nanoparticles-based approach
CIG6: 11/11 (Wed) 16:00-17:45			**Chair: Hans Wermer Schock (Helmholtz Centre)**
CIG6-I-1	CIG-I-01	Shunsuke Kijima	Optimization of CBD-Zn(O,S,OH)$_x$ buffer quality to improve the efficiency of 30cmx30cm-sized CIS-based thin-film submodules
CIG6-I-2	CIG-I-03	Neelkanth G. Dhere	Scale-up Issues of CIGSeS Thin Film PV Modules
CIG6-O-1	CIG-O-20	Hironori Komaki	Improvement of Integrated CIGS Submodule Process
CIG6-O-2	CIG-O-05	Valery Gremenok	Cu(In,Ga)Se_2 thin film solar cells on flexible metallic foils prepared by selenization process
CIG6-O-3	CIG-O-45	Kyung Hoon Yoon	Fabrication and performance of flexible CIGS thin film solar cells on stainless-steel substrates
CIG7: 11/12 (Thu) 11:00-12:30			**Chair: Loudmila Larina (KAIST)**
CIG7-I-1	CIG-I-04	Hans-Werner Schock	Prospects of Chalcopyrite and Related Compounds for Future Thin Film Solar Cells
CIG7-O-1	CIG-O-12	Shintaro Osada	Cu(In,Ga)Se_2 solar cells with superstrate structure using lift-off process
CIG7-O-2	CIG-O-36	Dung-Ching Perng	Influence of Substrate Structures on the Preferred Growth of CuInSe2 Thin Film
CIG7-O-3	CIG-O-31	Yuichi Sato	Vacuum evaporation of CdTe thin films on Ni-deposited sapphire single crystal substrates and effects of the Cd/Te ratio on their properties
CIG7-O-4	CIG-O-47	Udai P Singh	Comparative studies of chemically deposited CdS films on different substrates
CIG8: 11/13 (Fri) 11:00-12:30			**Chair: KyungHoon Yoon (KIER)**
CIG8-I-1	CIG-I-07	T. J. Anderson	Routes to the Synthesis of $CuIn_xGa_{1-x}Se_2$
CIG8-O-1	CIG-O-33	Martina Schmid	Optically Optimized $CuGaSe_2$ Top Cell for Improved Chalcopyrite Tandem
CIG8-O-2	CIG-O-28	Byung Tae Ahn	Preparation of wide band gap Cu $(InGa)_3Se_5$ thin films ith various Ga contents for CIGS solar cell
CIG8-O-3	CIG-O-26		Cancelled
CIG8-O-4	CIG-O-27	Thorsten Rissom	Examination of growth kinetics of copper rich Cu(In,Ga)Se_2-films using synchrotron energy-dispersive X-ray diffractometry

Area 4 : III-V Materials and Devices for Concentrator and Space PV Systems

Presentation No.	Abstract No.	Corresponding author	Title
CSP1: 11/11 (Wed) 11:00-12:30			**Chair: Robert J. Walters (Naval Research Lab)**
CSP1-O-1	CSP-O-02	Yasuyuki Ota	Operating characteristics simulation of concentrator photovoltaic modules using ray-trace and circuit simulators
CSP1-O-2	CSP-O-04	Vitali Kalinovsky	Consistency between dark and light characteristics of a multijunction solar cell.
CSP1-O-3	CSP-O-05	Kok-Keong Chong	Study of Non-Imaging Planar Concentrator in Dense-Array Concentrator Photovoltaic System
CSP1-O-4	CSP-O-06	Kenji Araki	The first demonstration of a high concentraotr PV power plant using III-V multi-junction cells
CSP1-O-5	CSP-O-07	Makoto Inagaki	Evaluation of minority carrier life time on p-GaAsN grown by chemical beam epitaxy
CSP1-O-6	CSP-O-09	Tomohiro Tanaka	Origin of H in N-H Complex Defects in GaAsN Grown by Chemical Beam Epitaxy
CSP2: 11/12 (Thu) 11:00-12:30			**Chair: Jaejin Lee (Ajou Univ.)**
CSP2-I-1	CSP-I-01	Robert J. Walters	The Role of Radiation Induced Defects in the Performance of Solar Cells in Space
CSP2-O-1	CSP-O-10	Minhyon Jeon	Application of InAs quantum dots and InGaAs quantum wells for tandem solar cell
CSP2-O-2	CSP-O-11	C. W. Liu	Luminescence from monolithic GaInP/GaInAs/Ge triple-junction solar cells
CSP2-O-3	CSP-O-12	Enrique Garralaga Rojas	Mesoporous Germanium Double Layers by Electrochemical Etching for Lift-Off Processes
CSP2-O-4	CSP-O-14	Sherif Michael	A Novel Design Approach of a High Efficiency Advanced Multi-Junction Cell for Solar Concentrators Applications

Area 5 : Dye-sensitized Solar Cells and Related Materials

Presentation No.	Abstract No.	Corresponding author	Title
DSC1: 11/9 (Mon) 16:00-17:30			**Chair: Hironori Arakawa (Tokyo Univ. of Science)**
DSC1-I-1	DSC-I-01	Mohammad Khaja Nazeeruddin	Dyes for Dye-Sensitized Solar Cells
DSC1-O-1	DSC-O-33	Chin Myung Whang	The Photoelectrochemical Properties of Dye sensitizied solar cells made with TiO_2 nanorods electrode
DSC1-O-2	DSC-O-31	Minhyon Jeon	Dye-sensitized solar cells using graphene based carbon nano composite as counter electrode
DSC1-O-3	DSC-O-29	Jun-Ho YUM, Michael Grätzel	The Efficient Organic Sensitizers for Dye-Sensitized Solar Cells
DSC1-O-4	DSC-O-28	Qing Wang	Reliable Measurement of Effective Diffusion Length of Electrons for Dye-sensitized Solar Cells
DSC2: 11/10 (Tue) 14:00-15:30			**Chair: Shozo Yanagida (Osaka Univ.)**
DSC2-I-1	DSC-I-02	Shuzi Hayase	Tandem and hybrid dye-sensitized solar cells for high efficiency
DSC2-O-1	DSC-O-32	Chin Myung Whang	Improved Quasi Solid Dye Sensitized Solar Cells by Polymer Composite Electrolyte Including Nano-Filler Particles
DSC2-O-2	DSC-O-27	Dae-Eun Kim	Effect of surface topography of top cover layer on the Efficiency of solar cell
DSC2-O-3	DSC-O-26	Sung-Ryong Kim	Novel photo-crosslinkable polymeric electrolyte system based on poly(ethylene glycol) and trimethylolpropane triacrylate for dye-sensitized solar cells with long-term stability.
DSC2-O-4	DSC-O-25	Jong Hak Kim	Design of Microphase-separated Polymer Electrolytes for Solid State Dye-sensitized Solar Cells
DSC3: 11/10 (Tue) 16:00-17:30			**Chair: Shuzi Hayase (Kyushu Institute of Tech.)**
DSC3-I-1	DSC-I-03	Shozo Yanagida	Dye-based Photovoltaics by Hybridization of Dye-Sensitized Nano-crystalline TiO_2 and Hole-Conductive Polymers
DSC3-O-1	DSC-O-24	Marko Topic	OPTICAL AND ELECTRICAL MODELLING AND CHARACTERIZATION OF DYE SENSITIZED SOLAR CELLS
DSC3-O-2	DSC-O-23	Won Jae Lee	Catalytic Carbon Counter Electrodes for Dye-sensitized Solar Cells
DSC3-O-3	DSC-O-21	Gi-Dong Lee	Control of the alignment of LC molecular for high PCE in Dye-sensitized solar sell using embedded liquid crystal molecular
DSC3-O-4	DSC-O-20	Minhyon Jeon	Effects of rapid thermal annealing treatment on the electrochemical impedance properties of multi-wall carbon nanotube counter electrodes for dye-sensitized solar cells
DSC4: 11/11 (Wed) 14:00-15:30			**Chair: Naohiko Kato (Toyota Central R&D Labs)**
DSC4-I-1	DSC-I-04	Jaejung Ko	Highly Efficient Organic Sensitizers and Methodology of Obtaining High Efficiency
DSC4-O-1	DSC-O-19	Jae-Joon Lee	Engineering the redox potential of solution phase for high-voltage dye-sensitized solar cells (DSSCs)
DSC4-O-2	DSC-O-17	Hironori Arakawa	Efficiency Improvement of Dye-Sensitized Solar Cells Using Series-Connected Tandem Structure
DSC4-O-3	DSC-O-16	Horng-Show Koo	Characteristic study of fullerene-doped zinc oxide as a photo-electrode anode for the dye-sensitized photovoltaic cells
DSC4-O-4	DSC-O-14	Naoki Koide	IMPROVEMENT OF CONVERSION EFFICIENCY OF DYE-SENSITIZED SOLAR CELLS AND MODULES
DSC5: 11/11 (Wed) 16:00-17:30			**Chair: Jaejung Ko (Korea Univ.)**
DSC5-O-1	DSC-O-13	Hironori Arakawa	Improvement of Solar Cell Efficiency of 10cm-by-10cm DSC Sub-Modules and Their Accelerated Long-Term Stability
DSC5-O-2	DSC-O-12	Moon-Sung Kang	DYE-SENSITIZED SOLAR CELLS EMPLOYING NOVEL POLYMER BASED ELECTROLYTES
DSC5-O-3	DSC-O-11	Oleg Shevaleevskiy	Charge Transfer across Dye-Sensitized ZnO/Electrolyte Interface: Role of the Surface States
DSC5-O-4	DSC-O-10	Naohiko Kato	Improvement in long-term stability of dye sensitized solar cell for outdoor use
DSC5-O-5	DSC-O-09	Shi-Woo Rhee	Improved Performance in Dye Sensitized Solar Cells Employing Alumina Modified TiO_2 Photoelectrodes
DSC5-O-6	DSC-O-08	Michael Graetzel	Improved light harvesting and effective low temperature dye uptake approach for high efficiency dye-sensitized solar cells
DSC6: 11/12 (Thu) 16:00-17:30			**Chair: Sung-Yeon Jang (KIST)**
DSC6-I-1	DSC-I-05	DAI Song-Yuan	Simulate and Optimize the maximum output of the DSC Module
DSC6-O-1	DSC-O-18	Jae-Joon Lee	Design and Fabrication of a Hetero Junction Dye Sensitized Solar Cells with Carbon Nantotubes
DSC6-O-2	DSC-O-15	Horng-Show Koo	The effect of quantum-dot-based working electrode on the optoelectronic characteristics of the dye-sensitized solar cells
DSC6-O-3	DSC-O-07		Cancelled

DSC6-O-4	DSC-O-34	Minhyon Jeon	Effects of substrate conductivity on synthesis of multi-walled carbon nanotubes and their dye-sensitized solar cells application
DSC7: 11/13 (Fri) 11:00-12:30			**Chair: Dai Song Yuan (Institute of Plasma Physics)**
DSC7-I-1	DSC-I-06	Yong Soo Kang	Roles of Electrolytes for Dye-Sensitized Solar
DSC7-O-1	DSC-O-05	Sung-Yeon Jang	MWCNT-g-PSSNa based Counter Electrode for Dye-sensitized Solar Cells
DSC7-O-2	DSC-O-04	Myoungho Pyo	Effects of co-adsorbents on NIR sensitization of TiO_2 electrode with poly(thieno[3,4-b]thiophene-2-carboxylic acid)
DSC7-O-3	DSC-O-03	Thomas C.-K. Yang	Influences of Water in Benzimidazole-derivative Electrolyte Additives to the Degradation of the Dye-sensitized Solar Cell
DSC7-O-4	DSC-O-01	Jeng-Shin Ma	Hydrothermal-microemulsion Synthesis of Pt Nanoparticles and its Applications for Dye-sensitized Solar Cells

Area 6 : Organic Solar Cells and Related Materials

Presentation No.	Abstract No.	Corresponding author	Title
OSC1: 11/10 (Tue) 11:00-12:30			**Chair: Changhee Lee (SNU)**
OSC1-I-1	OSC-I-02	Kwanghee Lee	Bulk Heterojunction Solar Cells with Internal Quantum Efficiency approaching 100% fabricated with the Poly(2,7-Carbazole) Copolymer
OSC1-O-1	OSC-O-18	Qiquan Qiao	POLYMER PHOTOVOLTAICS FROM ALL-WATER-SOLUTION PROCESSING
OSC1-O-2	OSC-O-15	Ahram Kim	Time-resolved Photocurrent Mapping for Characterizing Photo-sensitive Materials with the Crosstalk Eliminated (XE) Atomic Force Microscopy
OSC1-O-3	OSC-O-13	Toshihiro Yamanari	Lifetime test of polymer-based organic solar cells under AM 1.5 G light irradiation
OSC1-O-4	OSC-O-12	Golap Kalita	Incorporation of Carbon Nanotubes in Organic Solar Cells
OSC2: 11/11 (Wed) 11:00-12:30			**Chair: Kwanghee Lee (GIST)**
OSC2-I-1	OSC-I-01	Kilwon Cho	High Efficiency Organic Solar Cells using the Interpenetrating Structure with Poly (3-hexylthiophene) Nanowires
OSC2-O-1	OSC-O-11	Chie Gau	Hybrid Organic Solar Cells Based on Nanoparticles of $CuInSe_2$ and Conjugated Polymer
OSC2-O-2	OSC-O-10	Chang-Lyoul Lee	Investigation of triplet exciton dynamics of conjugated polymers in heavy metal complex blended polymer photovoltaic devices
OSC2-O-3	OSC-O-07	Chinho Park	Effect of CdSe / P_3HT Composition on Electrical and Structural Properties of Bulk Hetero-junction Solar Cell Active Layer
OSC2-O-4	OSC-O-06	Chun-Wei Chen	Enhanced carrier transport in vertical oriented ZnO nanorod/polymer hybrid photovoltaic devices
OSC3: 11/12 (Thu) 11:00-12:30			**Chair: Kyungkon Kim (KIST)**
OSC3-I-1	OSC-I-03	Yang Yang, Gang Li	Achieving high performance polymer solar cell
OSC3-O-1	OSC-O-17	Chi-Yang Chao	Syntheses and Characterization of Regioregular Poly(3-hexylthiophene) Triblock Copolymers from Coupling Reaction
OSC3-O-2	OSC-O-08	Yun Hee Jang	Low Band-Gap Copolymers Having Benzothiadiazole Acceptor Units: A Computer-Aided Design of Organic Solar Cell Materials
OSC3-O-3	OSC-O-05	Chun-Wei Chen	Enhanced hole collection efficiency by a 3D CNT nanostructure for polymer photovoltaic applications
OSC3-O-4	OSC-O-04	C. Gau	Improved Cell Performance in a Polymeric Solar Cell by Imprinted Nanostructure
OSC4: 11/12 (Thu) 14:00-15:30			**Chair: Qiquan Qiao (South Dakota State Univ.)**
OSC4-I-1	OSC-I-04	Kyungkon Kim	Solution Processed Inorganic Inter-layers for the Polymer Solar Cell
OSC4-O-1	OSC-O-03	Won Mok Kim	Comparative study on thickness dependent properties of TCO thin films grown on glass and PET substrates
OSC4-O-2	OSC-O-09	Seunghyup Yoo	ITO-free organic solar cells based on dielectric-metal-dielectric multilayer transparent electrodes
OSC4-O-3	OSC-O-01	Jin-Woo Park	The mechanical reliability of ITO on polymeric substrates for application to organic solar cells
OSC4-O-4	OSC-O-19	Jang-Joo Kim	Evolution of nanostructures by thermal annealing in poly(3-hexylthiophene):fullerene solar cell blends

Area 7 : Novel Materials and Devices

Presentation No.	Abstract No.	Corresponding author	Title
NMD1: 11/9 (Mon) 16:00-17:30			**Chair: Wan In Lee (Inha Univ.)**
NMD1-I-1	NMD-I-03	Yuh-Lang Lee	Efficient Photoelectrodes based on Co-Sensitization of

			Nanocrystalline TiO_2 Films by CdS and CdSe
NMD1-O-1	NMD-O-28	Kazuhide Kusakabe	Novel Monolayer InN Quantum Wells for Next Generation Solar Cells
NMD1-O-2	NMD-O-22	Yasukazu Kishimoto	A material based on Fluorine and Acrylic boosts sunlight receiving.
NMD1-O-3	NMD-O-06	Supria Chowdhury	Photochemical deposition of GaS_xO_y thin films
NMD1-O-4	NMD-O-03	Yasuyoshi Kurokawa	Effects of Oxygen Addition on Electrical Properties of Silicon Quantum Dots/Amorphous Silicon Carbide Superlattice

NMD2: 11/10 (Tue) 11:00-12:30 — **Chair: Yuh-Lang Lee (NCKU)**

NMD2-I-1	NMD-I-04	Duk-young Jung	A High quality Cu(In,Ga)Se2 films for inkprinted thin film photovoltaic device
NMD2-O-1	NMD-O-33	Sang Il Seok	The preparation of TiO_2 nanoparticles from peroxotitanium complex solutions and their application to quantum dot (dye)-sensitized solar cells
NMD2-O-2	NMD-O-18	HyoJoong Lee	Quantum Dot-Sensitized Mesoporous TiO_2 Solar Cells
NMD2-O-3	NMD-O-09	Shujuan Huang	Tin Quantum Dot Materials for Photovoltaic Applications
NMD2-O-4	NMD-O-36	Gunwoong Bahng	Development of Pd metal nano catalyst for the conversion of CO2 by hydrogenation

NMD3: 11/11 (Wed) 11:00-12:30 — **Chair: Duk-Young Jung (Sungkyunkwan Univ.)**

NMD3-O-1	NMD-O-32	Santosh K Shrestha	Fabrication of Energy Selective Contacts- Recent Progress at UNSW
NMD3-O-2	NMD-O-24	Ji Hyun Moon, Jeong Chul Lee	Size and density control of silicon quantum dots in SiC matrix
NMD3-O-3	NMD-O-21	Moon S. Chung	Rectification Properties of Metal-Vacuum-Metal Junctions for the Solar Energy Conversion
NMD3-O-4	NMD-O-08	Yutaka Hoshina	GROWTH AND CHARACTERIZATION OF TRANSITION-TYPE-CONTROLLED TENSILE-STRAINED GERMANIUM AS A NOBLE NARROW BAND GAP ABSORBER
NMD3-O-5	NMD-O-16	Nobuyuki Matsuki	Transparent Schottky Contacts by Conductive Polymers and Its Application to III-nitrides Solar Cells
NMD3-O-6	NMD-O-23	Jyh-Ming Ting	X-ray absorption spectroscopy (XAS) study of selective solar absorber coatings for chromium containing amorphous hydrogenated carbon thin films (a-C:H/Cr)

NMD4: 11/11 (Wed) 16:00-17:30 — **Chair: A. Heeger (UCSB)**

NMD4-O-1	NMD-O-25	Sun Jin Yun	Anti-Reflection-TiAlO Thin Films Prepared by Sol-Gel Process for Solar Cell Applications
NMD4-O-2	NMD-O-14	Hisashi Uchiyama	Realization of low emitter surface reflection by P-doped silicon nanowires
NMD4-O-3	NMD-O-05	Ashraf M. Abdel Haleem	A Novel Highly Transparent Buffer Layer Based on III-VI Materials for Solar Cell Applications
NMD4-O-4	NMD-O-30	Wan In Lee	Efficient QD-Sensitized Solar Cells Fabricated with Sub-micron-sized TiO_2 Spheres
NMD4-O-5	NMD-O-31	Seung-Nam Park	Quantum Efficiency Uniformity Testing Method of Photovoltaics Based on Image Patterns from Beam Projector
NMD4-O-6	NMD-O-34	Yong Heng So	Investigation of Silicon Nanocrystals Embedded in Amorphous Silicon Nitride Matrix for All-Silicon Tandem Cell Application

NMD5: 11/12 (Thu) 14:00-15:30 — **Chair: Chie Gau (NCKU)**

NMD5-I-1	NMD-I-02	Sang Ouk Kim	Directed Molecular Assembly of Soft Materials for Photovoltaic Applications
NMD5-O-1	NMD-O-35	T. Sugaya	InGaAs Quantum Dot Solar Cells Fabricated by Conventional MBE
NMD5-O-2	NMD-O-13	Vladimir Svrcek	AN IMPROVEMENT OF P3HT BASED BULK-HETEROJUNCTION PEFORMANCE UPON FABRICATION OF SI-NCS BY LASER ABLATION IN LIQUID MEDIA
NMD5-O-3	NMD-O-20	S. Adhikari	SILICON-INCORPORATED P-TYPE AMORPHOUS CARBON THIN FILMS FOR PHOTOVOLTAIC DEVICES
NMD5-O-4	NMD-O-19	Z.Q Ma	PV property of ultraviolet enhanced SINP device

NMD6: 11/12 (Thu) 16:00-17:30 — **Chair: Nobuyuki Matsuki (NIMS)**

NMD6-O-1	NMD-O-15		Cancelled
NMD6-O-2	NMD-O-29	S. A. Moiz	Electrical Characterization of Metal-Si Microwire Interface for Enhancing Photovoltaic Charge Collection Efficiency
NMD6-O-3	NMD-O-11	Hare Ram Aryal	STUDY OF CARRIER MOBILITY, PHOTOCONDUCTIVITY AND PHOTOVOLTAIC CHARACTERISTICS OF CARBON THIN FILMS
NMD6-O-4	NMD-O-10	Chie Gau	Photovoltaic Characteristics of Silicon Nanowire Arrays Synthesized by Vapor-Liquid-Solid Process
NMD6-O-5	NMD-O-07	Noritaka Usami	Impact of growth temperature on microstructures in polycrystalline Si thin film grown by Al-induced layer exchange process

NMD6-O-6	NMD-O-01	Joondong Kim	Silicon Nanowires for Photovoltaics

Area 8 : PV Modules and System Components Including Testing and Reliability

Presentation No.	Abstract No.	Corresponding author	Title
PMS1: 11/10 (Tue) 14:00-15:30			**Chair: Hyungkeun Ahn (Konkuk Univ.)**
PMS1-I-1	PMS-I-03	Sam Sohn	Impact of thermal management on the efficiency PV modules - Based on PV module simulation work
PMS1-O-1	PMS-O-15	Dhirayut Chenvidhya	Analysis of solar cell characteristics under partial shading conditions
PMS1-O-2	PMS-O-16	Arvind Shah	Testing of a-Si :H cells/modules with the VIM method
PMS1-O-3	PMS-O-21	Sheng-Hui Chen	Photoluminescence imaging for excess carrier lifetime measurement in silicon solar cells
PMS1-O-4	PMS-O-28	Hsin-Hsin Hsieh	Performance of low series-resistance interconnections on the polycrystalline solar cells
PMS2: 11/10 (Tue) 16:00-17:30			**Chair: Sam Sohn (Dupont)**
PMS2-O-1	PMS-O-29	Seung-Nam Park	LED-based Differential Spectral Responsivity Measurement of Solar Cells
PMS2-O-2	PMS-O-31	Moo Whan Shin	Thermal Characterization of Solar Cell Package Using a Transient method
PMS2-O-3	PMS-O-34	Woojin Choi	A Novel Parameter Extraction Method for the Solar Cell Model
PMS2-O-4	PMS-O-02	Tetsuyuki Ishii	Estimation of the maximum power temperature coefficients of PV modules at different time scales
PMS2-O-5	PMS-O-06		Cancelled
PMS2-O-6	PMS-P-12	Joong-Hyun Park	Outdoor performance report of thin film solar modules deployed in middle area of South Korea
PMS3: 11/11 (Wed) 11:00-12:30			**Chair: Yoshihiro Hishikawa (AIST)**
PMS3-O-1	PMS-O-08	Caroline Tjengdrawira	Direct Performance Comparison of MWT and H-pattern Solar Modules
PMS3-O-2	PMS-P-08	Kee Hwan Kim	A Development of the Solar Position Tracker for Teaching with the Tiny Stand-alone PV System
PMS3-O-3	PMS-O-14	Manit Seapan	Study on Impedance of PV Modules and Measurement of IV Characteristics by Pulse Solar Simulator
PMS3-O-4	PMS-O-17	Marko Topic	Outdoor testing of PV module temperature and performance under different mounting and operational conditions
PMS3-O-5	PMS-O-19	Cristina Cornaro	A simple empirical efficiency model for PV modules energy production estimation
PMS3-O-6	PMS-O-22	Rojana Leecharoen	Traceability of calibration for PV modules measurements in Thailand
PMS4: 11/11 (Wed) 14:00-15:30			**Chair: Marco Topic (University of Ljubljana)**
PMS4-O-1	PMS-O-24	ANGELO SPENA	Modeling Spectral Response and Reflectivity Effects: Comparison With Outdoor Measurements on PV Modules
PMS4-O-2	PMS-O-25	Yoshihiro HISHIKAWA	Calculation Formula for irradiance and temperature correction of the I-V Curves of Solar Cells and Modules by Linear Interpolation/Extrapolation
PMS4-O-3	PMS-O-26	Shirish Pethe	High Voltage Bias Testing of PV Modules as metrics for Module Reliability Testing
PMS4-O-4	PMS-O-30	Caroline Tjengdrawira	Advanced characterization of MWT solar modules
PMS4-O-5	PMS-O-03	Roland Bruendlinger	Characterizing the Overall Performance of Grid-connected PV power converters with the new European Standard EN 50350
PMS4-O-6	PMS-O-11	Christoph Mayr	Development and Operation of a fully automated Test laboratory for grid-connected PV Inverters
PMS5: 11/12 (Thu) 11:00-12:30			**Chair: Kee Hwan Kim (Semyung Univ.)**
PMS5-I-1	PMS-I-04	Stanislaw M. Pietruszko	RISING OPPORTUNITIES FOR PHOTOVOLTAICS IN THE CENTRAL AND EASTERN EUROPE
PMS5-O-1	PMS-O-20	Thanawit Srisaksomboon	Application of an industrial inverter to a deep-well PV water pumping system in Thailand
PMS5-O-2	PMS-O-33	Anawach Sangswang	An Analysis on Energy Dissipation of a PV Grid-Connected Inverter during Abnormal Utility Voltage Condition
PMS5-O-3	PMS-O-04	AKIRA KUWAYAMA	VERIFICATION STUDY OF MEGA-SOLAR WITH BATTERY STORAGE SYSTEM AT WAKKANAI
PMS5-O-4	PMS-O-10	Olga Moraes Toledo	Simulation Advances of Solar Energy Photovoltaic Generation Systems
PMS6: 11/13 (Fri) 11:00-12:30			**Chair: Moo Whan Shin (MyungJi Univ.)**
PMS6-O-1	PMS-O-13	Kenji Araki	A new tracker for CPV application designed for high-wind area

PMS6-O-2	PMS-O-18	Edson L. Meyer	On the performance of a building integrated photovoltaic (BIPV) generator of an energy efficient house.
PMS6-O-3	PMS-O-23	Manit Seapan	The study of developed PV Pumping systems base on commercial components in Thailand
PMS6-O-4	PMS-P-32	Moo Whan Shin	Proposal and Investigation of LED Solar Simulator
PMS6-O-5	PMS-O-32	Steve Ransome	Errors and uncertainties in kWh/kWp modelling, predictions and measurements
PMS6-O-6	PMS-O-35	S. M. Pietruszko	LONG-TERM ANALYSIS OF THE PERFORMANCE OF GRID CONNECTED PHOTOVOLTAIC SYSTEM

Area 9 : Terrestrial PV Systems

Presentation No.	Abstract No.	Corresponding author	Title
TPV1: 11/10 (Tue) 11:00-12:15			**Chair: Kee Hwan Kim (Semyung Univ.)**
TPV1-I-1	TPV-I-01	Yuzuru UEDA	Evaluation of Different PV Modules and Systems in HOKUTO Mega-Solar Project
TPV1-O-1	TPV-O-04	Hiroo Konishi	Research and development and evaluation of measured data for the second stage in the Hokuto solar project
TPV1-O-2	TPV-O-01	Ami Elazari	Multi Solar (PVT) Co-Generation Power Station
TPV1-O-3	TPV-O-05	Kenji Araki	Performance of the 30 kW CPV system constructed - the first CPV system in Japan supplying power to local facilities
TPV2: 11/11 (Wed) 16:00-16:45			**Chair: Yuzuru Ueda (TIT)**
TPV2-I-1	TPV-I-02	Kazuhiko Ogimoto	Power system demand-supply balance analysis including utilization of power storage under substantial PV penetration
TPV2-O-1	TPV-O-02	NOPPORN PATCHARAPRAKITI	MODELING OF SINGLE PHASE INVERTER OF PHOTOVOLTAIC SYSTEM USING NONLINEAR SYSTEM IDENTIFICATION

Area 10 : PV Programs, Industries, Market, and Environment

Presentation No.	Abstract No.	Corresponding author	Title
PIM1: 11/11 (Wed) 16:45-17:30			**Chair: Yuzuru Ueda (TIT)**
PIM1-O-1	PIM-O-03	Eiichi ENDO	Evaluation of the new dissemination acceleration programs for residential PV systems in Japan
PIM1-O-2	PIM-O-02	Richard Corkish	Photovoltaics engineering education, underpinning growth in the Asia-Pacific region
PIM1-O-3	PIM-O-18	Hideki Wada	Generation characteristics of 100kW PV system with various tilt angle and direction arrays
PIM2: 11/12 (Thu) 14:00-15:30			**Chair: Izumi Kaizuka (RTS Corporation)**
PIM2-I-1	PIM-I-01	Izumi KAIZUKA	Trends of PV Market in Japan: Yesterday, Today & Tomorrow
PIM2-O-1	PIM-O-14	Hyung Chul Kim	Life Cycle Analysis of Photovoltaics: an Update of Sustainability Indicators
PIM2-O-2	PIM-O-06	Charles Annis	Comparative Study of the Maturing FPD Industry to the Nascent Photovoltaics Industry
PIM2-O-3	PIM-O-05	Izumi Kaizuka	TRENDS IN PHOTOVOLTAIC APPLICATIONS - LATEST RESULTS FROM THE IEA PVPS PROGRAMME SURVEYS ON PV MARKET, INDUSTRY AND POLICY-
PIM2-O-4	PIM-O-04	Salvatore Castello	MONITORING OF PV TECHNOLOGY IN ITALY
PIM3: 11/12 (Thu) 16:00-17:45			**Chair: KyungHoon Yoon (KIER)**
PIM3-I-1	PIM-I-03	Heechan Kang	Global PV policy changes and their impacts
PIM3-O-1	PIM-O-10	Frank Siebke	PV Technology – an investor's view on the race to grid parity
PIM3-O-2	PIM-O-08	Tobias Rothacher	How to build up a successful PV cluster - Preconditions, Drivers and Sustainment
PIM3-O-3	PIM-O-07	Won-Cheol Yun	Electricity Planning Including Photovoltaics Using Portfolio Theory
PIM3-O-4	PIM-O-01	Michael Holman	Lux Research: Finding the Solar Market's Nadir
PIM4: 11/13 (Fri) 11:00-12:30			**Chair: Yong Sung Cho (Korea Univ.)**
PIM4-O-1	PIM-O-12	Sang Hoon Lee	Feed in Tariff or Renewable Portfolio Standard : The trends and prospects of PV policy in South Korea
PIM4-O-2	PIM-O-09	Tobias Rothacher	Photovoltaic Markets in Germany and Europe – Drivers, Risks and Prospects
PIM4-O-3	PIM-O-17	Sener Oktik	Rising Opportunities for Photovoltaic Power Systems in Turkey
PIM4-O-4	PIM-O-13	Kei Morita	The study on possibility of PV installation considering redevelopment of cities
PIM4-O-5	PIM-O-11	Ballang Muenpinij	Photovoltaic Standard Testing Activities in Thailand

PIM4-O-6	PIM-O-20	Yongsung Cho	Driving Forces and Environmental Benefits of Photovoltaic Power Systems

Posters

Poster 1: CSI, DSC

Presentation No.	Abstract No.	Corresponding author	Title
P1: 11/10 (Tue) 09:00-12:30			
CSI-P1-1	CSI-P-01	Dae-Yong Lee	A New Back Surface Passivation Scheme for Thin Crystalline Silicon Solar Cells with Screen-Printed Back Contacts
CSI-P1-2	CSI-P-03	Thomas Mueller	Heterojunction Solar Cells with High Open Circuit Voltage and Efficiencies Exceeding 19%
CSI-P1-3	CSI-P-06	Junsin Yi	Study on Hydrogenated Silicon Nitride for Application of High Efficiency Crystalline Silicon Solar Cells
CSI-P1-4	CSI-P-08	Junsin Yi	EMITTER OPTIMISE OF A-SI:H/C-SI HETEROJUNCTION SOLAR CELLS PROCESSED AT LOW TEMPERATURES
CSI-P1-5	CSI-P-09	Junsin Yi	Influence of Indium Tin Oxide (ITO) Properties on Performances of Heterojunction Intrinsic Thin (HIT) Solar Cell
CSI-P1-6	CSI-P-10	Jin Ho Kim	Comparison between acidic and alkaline emitter etch-back effects on surface morphology and reflectance of alkaline textured single-crystalline silicon wafers
CSI-P1-7	CSI-P-13	Kensuke Nishioka	Temperature characteristics analysis of mono- and multicrystalline-Si solar cells by SPICE
CSI-P1-8	CSI-P-14	Sang Jung Kang	Performance improvement of heterojunction solar cells by UV treatment and thermal annealing using photo chemical vapor deposition method
CSI-P1-9	CSI-P-15	Jong Hwan Kim	The effect of series resistance on metal-wrap-through multi-crystalline silicon solar cells
CSI-P1-10	CSI-P-16	Jong Hwan Kim	METAL-WRAP-THROUGH MULTICRYSTALLINE SILICON SOLAR CELLS WITH REACTIVE ION ETCHED SURFACE
CSI-P1-11	CSI-P-19	Kyungwon Lee	Selective Emitter characteristics using laser doping method for crystalline silicon solar cells.
CSI-P1-12	CSI-P-21	Toshihiro iki	Detail investigation of phonon-emitting energy loss in the *p-n* junction by using piezoelectric photothermal and surface photovoltage techniques
CSI-P1-13	CSI-P-23	Jin Jang	Effect of Hydrogen Plasma Passivation on Performance of HIT Solar Cells
CSI-P1-14	CSI-P-24	Tsu-Tsung Li	Influence of Oxygen on the Sputtering of Aluminum Oxide for the Surface Passivation of Crystalline Silicon
CSI-P1-15	CSI-P-28	Hyung-Dong Kang	A novel textured shape for a-Si:H/c-Si Heterojunction Solar Cells using Reactive Ion Etching (RIE) Technology.
CSI-P1-16	CSI-P-33	Kenji Hirata	IMPROVEMENT OF J_{sc} WITH SELECTIVE EMITTER FORMED BY ULTRAVIOLET LASER DOPING
CSI-P1-17	CSI-P-35	J. S. Shin	Fabrication of binder-free poly-Si powder compacts by CIP
CSI-P1-18	CSI-P-39	Firoz Khan	PERFORMANCE OF MONOCRYSTALLINE SILICON SOLAR CELLS WITH THERMALLY EVAPORATED ZINC OXIDE ANTIREFLECTION COATINGS
CSI-P1-19	CSI-P-46	Takashi Saitoh	Control of Doping Depth by Multiple Laser Irradiations for Low-temperature Process of Silicon Solar cell
CSI-P1-20	CSI-P-49	Won Seok Choi	Columnar Structure Anti-reflection Coating for Solar Cells
CSI-P1-21	CSI-P-52	Hyunwoo Lee	Selective Emitter formation using P diffusion paste for Commercial screen-printed solar cells
CSI-P1-22	CSI-P-54	Emi Sugimura	Local Analysis of Multi-crystalline Silicon Solar Cells Using Electroluminescence
CSI-P1-23	CSI-P-57	P.K. Singh	A Comparative Study of Minority Carrier Lifetime/Diffusion Length in Silicon wafers Measured by Different Methods
CSI-P1-24	CSI-P-58	Eunjoo Lee	Advanced concepts of industrial crystalline silicon solar cells with selective emitter
CSI-P1-25	CSI-P-59	Seongjae Boo	Investigation on the size control of crystalline silicon grain in the aluminium induced layer exchange process of amorphous silicon
CSI-P1-26	CSI-P-60	Donghwan Kim	The Effect of Transparent Conductive Oxide/p-a-Si:H Interface on Silicon Hetero-junction Solar Cell
CSI-P1-27	CSI-P-61	Young Koo Park	Combined Process of Plasma Arc Refining and Directional Solidification for Solar Grade Silicon
CSI-P1-28	CSI-P-62	Sungho Hwang	Characteristics Investigation of Upgraded Metallurgical Grade Solar cells
CSI-P1-29	CSI-P-63	Jeong Chul Lee	Effect of post thermal annealing of a-Si:H films deposited by HW-CVD on c-Si surface passivation and heterojunction solar cell performances
CSI-P1-30	CSI-P-64	Koji Arafune	Evaluation of fixed charge area density in a-SiNx:H films for crystalline silicon solar cells
CSI-P1-31	CSI-P-65	Dong-Sing Wuu	Characterization of Amorphous $Si_{1-x}C_x$:H Films Prepared by HWCVD for Silicon Heterojunction Solar Cell Applications

CSI-P1-32	CSI-P-66	S.U. Jun	Surface Texturing and Anti-Reflection Coating of Multi-crystalline Silicon Solar Cell
CSI-P1-33	CSI-P-67	Seokkyu Han	Improving Open Circuit Voltage(V_{oc}) of Crystalline Silicon Solar Cell by Double Step Doping
CSI-P1-34	CSI-P-68	Daisy Verma	Correlation between reflectivity and photoluminescent properties of porous silicon films
CSI-P1-35	CSI-P-69	Jeong Chul Lee	Effect of chemical passivation treatment of silicon wafer surface on a-Si/c-Si interface and hetero-junction solar cells
CSI-P1-36	CSI-P-71	Soobeom Ahn	Double Side Hydrogen Passivation for Mass PV Cell Production
CSI-P1-37	CSI-P-72	Sumi Yang	Improvement of Surface Passivation with Anti-Reflection Coating and Hydrogen Plasma Treatment for Crystalline Silicon Photovoltaic Cells
CSI-P1-38	CSI-P-73	P.K. Singh	Measurement of Minority Carrier Lifetime in Chemically Passivated Silicon Wafers
CSI-P1-39	CSI-P-76	Donghwan Kim	Passivation Qualities of ALD Al_2O_3 Thin Film via Interfacial Silicon Oxide Layer for Crystalline Silicon Solar Cells
CSI-P1-40	CSI-P-79	Donghwan Kim	Annealing effects on rear surface passivation Al_2O_3 thin layer for ultra thin crystalline silicon solar cells
CSI-P1-41	CSI-P-84	Junsin Yi	A Study of Screen Printed Selective Emitter by Diffusion Paste for Single Crystalline Silicon Solar Cell
CSI-P1-42	CSI-P-87	Won-Jong Yoo	Fabrication of the SiNW radial p-n junction solar cells with the controlled filling ratios by using ICP etcher and LPCVD
CSI-P1-43	CSI-P-88	Bibhu P. Swain	Ambient stability of wet chemically passivated germanium wafer for crystalline solar cells
CSI-P1-44	CSI-P-90	Sanjay Kumar Srivastava	Fabrication of silicon nanowire arrays based solar cell with improved performance
CSI-P1-45	CSI-P-91	Larry Wang	SIMS study of C, O and compensation (B and P) on Si solar cell performance
CSI-P1-46	CSI-P-92	Bhabani S. Swain	Chemical Surface Passivation of Silicon Nanowires grown by APCVD
CSI-P1-47	CSI-P-95	Byungwhan Kim	Duty ratio-controlled refractive index of silicon nitride films deposited using SiH_4-N_2 pulsed plasma
CSI-P1-48	CSI-P-96	Byungwhan Kim	Deposition rate of SiN film grown by using a pulsed-PECVD at room temperature
CSI-P1-49	CSI-P-99	Michael Simon	ELEMENTARY COMPOSITON AT HOT-SPOT SITES IN CRYSTALLINE SILICON CELLS
DSC-P1-1	DSC-P-01	Hong Lin	Electron Transport and Recombination in Binder-Free TiO2 Film for Flexible Dye-Sensitized Solar Cells
DSC-P1-2	DSC-P-02	Weontae Oh	Structure control of nanocrystalline TiO_2 for dye-sensitized solar cell application
DSC-P1-3	DSC-P-03	Hyunwoong Seo	The improvement in the efficiency of dye-sensitized solar cells by the various surface treatments of transparent conductive oxides
DSC-P1-4	DSC-P-04	Hyunwoong Seo	A study on the efficiency-balanced W-series interconnect type of dye-sensitized solar module by designing to maximize the light harvesting
DSC-P1-5	DSC-P-05	Michael Grätzel	Highly Efficient Organic Sensitizers for Solid-State Dye-Sensitized Solar Cells
DSC-P1-6	DSC-P-06	Won-Youl Choi	Fabrication of Dye-sensitized Solar Cells by Transplanting Highly Ordered TiO_2 Nanotube Arrays
DSC-P1-7	DSC-P-07	Hyoun Woo Kim	Fabrication and characteristics of ZnO-based-branched nanowires
DSC-P1-8	DSC-P-08	Won-Wook So	Synthesis of tricarboxy terpyridine
DSC-P1-9	DSC-P-09	J.-H. Boo	Synthesis of TiO_2 Thin Films Using Single Molecular Precursors by MOCVD Method for Dye-sensitized Solar Cells Application and Study on Film Growth Mechanism
DSC-P1-10	DSC-P-10	Yong-Gun Shul	TiO_2 thin films layered transparent substrates for dye-sensitized solar cells
DSC-P1-11	DSC-P-11	Chi-Hwan Han	Scattering material containing electrolyte for dye sensitized solar cell
DSC-P1-12	DSC-P-13	Chi-Hwan Han	UV curable gel-type polymer electrolyte for dye sensitized solar cell
DSC-P1-13	DSC-P-14	Chi-Hwan Han	Voltage increase in dye sensitized solar cell by electrolyte ageing with additives
DSC-P1-14	DSC-P-15	Yoon-Hwae Hwang	Effect of annealing treatment of Ti foil on synthesis of regular arrays of anodic TiO_2 nanotubes
DSC-P1-15	DSC-P-16	Hyung-Shik Shin	Preparation of plasma ehanced polymerized aniline/Tio_2 thin films and application in DSSCs
DSC-P1-16	DSC-P-17	Won-Wook So	The scattering effect of rod-type titania particles on the performance of dye sensitized solar cell
DSC-P1-17	DSC-P-18	Jin-Kyoung Kim	The analysis of the change in the performance and impedance of dye-sensitized solar cell according to the dye-adsorption time
DSC-P1-18	DSC-P-19	Nobuko Onozawa-Komatsuzaki	Near-IR dye-sensitized solar cells using a new type of ruthenium complexes having 2,6-di(quinolin-2-yl)pyridine derivatives
DSC-P1-19	DSC-P-20	Do Kyung Lee	Molecular Design of Organic dyes with steric-molecular structures

			for dye-sensitizer solar cell
DSC-P1-20	DSC-P-21	Hyunjung Lee	Novel preparation of DSSCs using electrolyte_based pastes
DSC-P1-21	DSC-P-22	Hyunjung Lee	Fabrication of CNT-based transparent conductive films for dye-sensitized solar cells
DSC-P1-22	DSC-P-26	Yasutaka Hirashita	Effect of P25:PC101 ratio on the photothermal and photoluminescence spectra of titania thin films with mixture of anatase and rutile structures fabricated by the squeegee method
DSC-P1-23	DSC-P-27	Hyun M. Jang	Dye Sensitization of Nanocrystalline TiO_2 Film by a New Ruthenium (II) Diimine Dithiolate Complex
DSC-P1-24	DSC-P-28	Man Gu Kang	The Energy Conversion Efficiency of ZnO Colloidal Nanocrystal Clusters and Nanosheet in Dye-Sensitized Solar Cells
DSC-P1-25	DSC-P-29	Hyun M. Jang	Bifunctional Anatase TiO_2 Aggregates with Fast Dye-Adsorption: An Efficient Photoanode for Dye-Sensitized Solar Cells
DSC-P1-26	DSC-P-30	Hyun M. Jang	Influence of the Photovoltaic Performance of Dye-Sensitized Solar Cells Modified by Sliane Coupling Agents
DSC-P1-27	DSC-P-31	Sang Il Seok	Cu_2S-sensitized solar cell based on mesoporous NiO photocathode
DSC-P1-28	DSC-P-32	Dong-Won Kim	Polymer Electrolytes Based on Semi-Interpenetrating Polymer Network for Dye-Sensitized Solar Cell
DSC-P1-29	DSC-P-33	Sang Il Seok	Near-Infrared Photodetection Based on Nanocrystalline PbS Sensitized Photovoltaics
DSC-P1-30	DSC-P-34	Sang Il Seok	Near-Infrared Photovoltaic Cells Enhanced by Interface Engineering
DSC-P1-31	DSC-P-35	Sang Il Seok	Spray pyrolysis deposited-nanocrystalline CdS sensitized solar cells
DSC-P1-32	DSC-P-36	Dae Ho YOON	Improvement of solar conversion efficiency by using flexible substrates for dye-sensitized solar cells
DSC-P1-33	DSC-P-38	Hee-Woo Rhee	Investigation of High Conducting Ionic Liquid Doped PEO:LiI Based Polymer Electrolytes for Dye Sensitized Solar Cell
DSC-P1-34	DSC-P-39	Yoon-Soo Han	Effects of surface-modified TiO_2 on the performance of dye-sensitized solar cells
DSC-P1-35	DSC-P-40	Ji-Beom Yoo	Growth and application of submicrometer-scale rectangular parallelepiped rutile TiO_2 rods
DSC-P1-36	DSC-P-41	Hironori Arakawa	Study on stability of plastic-substrate dye-sensitized solar cell prepared by press method
DSC-P1-37	DSC-P-42	Hironori Arakawa	Development of new β-diketonate(polypyridine)Os complex dyes for utilization of infrared-light on the dye-sensitized solar cell
DSC-P1-38	DSC-P-43	Hee-Je Kim	Analysis of TiO2 thickness effect on characteristic of dye-sensitized solar cell by using electrochemical impedance spectroscopy.
DSC-P1-39	DSC-P-44	Seung-Hyeon Moon	Preparation of efficient dye-sensitized solar cells using electrospun nanofibers for the photo-anode and quasi-solid state electrolytes
DSC-P1-40	DSC-P-45	Yung-Eun Sung	Preparation of Highly Ordered Mesoporous Al_2O_3/TiO_2 and Its Applicaion to Dye-Sensitized Solar Cells
DSC-P1-41	DSC-P-46	Chee Won Chung	Characteristics of Indium Zinc Oxide Thin Films Prepared by Direct Current Magnetron Sputtering For Flexible Solar Cells
DSC-P1-42	DSC-P-47	Chee Won Chung	Performance Improvement of Dye-Sensitized Solar Cell by Surface Patterning of FTO Transparent Electrode
DSC-P1-43	DSC-P-48	Hironori Arakawa	Study on deterioration mechanism of dye-sensitized solar cell under light-soaking test
DSC-P1-44	DSC-P-49	Youl-Moon Sung	TCO-less dye-sensitized solar cells fabrication using rf magnetron sputtering technology
DSC-P1-45	DSC-P-100	Won Jae Lee	Fabrication of bias-power solar cells for water splitting
DSC-P1-46	DSC-P-101	Yong Soo Kang	Enhancement of Photovoltaic Efficiency by Polystyrene based Co-adsorbent on the TiO_2 Nanostructure in the Dye-Sensitized Solar Cells.
DSC-P1-47	DSC-P-102	Yong Soo Kang	Oligomeric PEG-based Co-adsorbent on the TiO_2 Nanostructure in Dye-Sensitized Solar Cells
DSC-P1-48	DSC-P-104	Bhaskar Bhattacharya, Jung-Ki Park	Effect on the Performance of DSSC due to Semiconductor Dispersion in the Polymer Electrolyte

Poster 2: NMD, OSC, CSP

Presentation No.	Abstract No.	Corresponding author	Title
P2: 11/10 (Tue) 14:00-17:30			
NMD-P2-1	NMD-P-01	Lili Wu	Structural, electrical and optical properties of AlSb films deposited by magnetron sputtering and annealing
NMD-P2-2	NMD-P-02	Takashi Minemoto	Design of full-spectrum solar cells using empirical relationship between performance and bandgap
NMD-P2-3	NMD-P-03	Il-Wun Shim	Deposition of SnS thin films using the MOCVD method
NMD-P2-4	NMD-P-04	Jong-Seong Bae	Studies on the structures and properties of Gold-decorating carbon nanotube composites

NMD-P2-5	NMD-P-05	Chinho Park	Structural and optoelectronic properties of $CuInSe_2$ and $CuInSe_2/Cu_2Se$ (core/shell) Nanoparticles
NMD-P2-6	NMD-P-06	Seung Hoon Nahm	Current Variation of a single ZnO nanorod with Exposing Light Source during Mechanical straining process
NMD-P2-7	NMD-P-07	teresa oh	Relationship between Thickness and Electronic Characteristic of Amorphous low-k Thin Film for Solar Cell
NMD-P2-8	NMD-P-08	Won Kook Choi	Photovoltaic cells with consolidated P-I-N single active layer structure by using hybrid Quantum Dots and organic materials
NMD-P2-9	NMD-P-09	Yuuki Nakashima	Heterojunction solar cells based on electrochemically deposited $Cu_xSn_yS_zO$ thin films
NMD-P2-10	NMD-P-10	Katsuya Funayama	A New Type of Single Layer Anti-reflective Coating with Ultralow N for Photovoltaic
NMD-P2-11	NMD-P-13	Yun Chan Kang	Characteristics of silver-glass composite powders containing Pb-based glass material as electrode material for solar cell
NMD-P2-12	NMD-P-14	Yun Chan Kang	Electrical and morphological charactersitics of silver conducting films formed from the silver and Bi-based glass powders prepared by spray pyrolysis
NMD-P2-13	NMD-P-15	Sungho Woo	Hybrid solar cells from conducting polymers and single crystalline Si nanorods
NMD-P2-14	NMD-P-16	Takashi Itoh	Preparation and properties of $In_xGa_{1-x}N$ alloy films by rf-sputtering
NMD-P2-15	NMD-P-17	Ji-Beom Yoo	New method for the fabrication of Transparent Conducting Film with Carbon nanotube and Graphene
NMD-P2-16	NMD-P-18	Hyuneui Lim	Antireflective self-cleaning glass for solar cells
NMD-P2-17	NMD-P-23	Gye-Choon Park	Analysis of the MgF_2 antirefleation film using resistance heat
NMD-P2-18	NMD-P-24	Sohee Jeong	Hybrid Heterojunction Solar Cell Based on CdSe Nanocrystal Quantum Dots
NMD-P2-19	NMD-P-25	Min Woo Park	Fabrication of $Ti_{1-x}V_xO_2$ Nanotube Arrays by Anodic Oxidation of Ti-V alloy for application to Photoconversion Cells.
NMD-P2-20	NMD-P-26	Tonio Buonassisi	Investigation of Cuprous Oxide (Cu_2O) Deposited by Reactive DC Sputtering for Thin Film Solar Cells Applications
NMD-P2-21	NMD-P-28	Yi Soung Soo	Energy Transfer and Fluorescence Properties of Yb^{3+}, Tm^{3+} and Er^{3+}-codoped $LiMgBO_3$ Phosphors
NMD-P2-22	NMD-P-29	Jyh-Ming Ting	Room-Temperature Synthesized Single-Crystalline TiO_2 nanowires
NMD-P2-23	NMD-P-31	Hyoung-Joon Jin	Flexible and Electrically Conducting Electrodes Prepared by Carbon Nanotube and Nanofiber Composites
NMD-P2-24	NMD-P-32	Yoshihiro Tomitsuka	Fabrication of Solar Cells Using Silicon Nanowires Assisted by Hydrogen Radical CVD
NMD-P2-25	NMD-P-33	Wan In Lee	Photovoltaic Properties in QD-Sensitized Solar Cells with Sub-micron-sized TiO_2 Spheres
NMD-P2-26	NMD-P-34	Jeong Chul Lee	Structural and optical characterization of silicon quantum dots superlattice in SiC matrix
NMD-P2-27	NMD-P-35	Tae Whan Kim	Enhancement of power conversion efficiency in photovoltaic cells fabricated utilizing ZnO quantum dot/multiwalled carbon nanotube hybrid nanocomposites due to an embedded hole transport layer
NMD-P2-28	NMD-P-37	Yong Soo Kang	Enhanced Charge Transport and Charge Injection in Coupled (CdSe/CdS) Quantum Dots-Sensitized TiO_2 Nanoparticle/ Nanowire Composite Solar Cells
OSC-P2-1	OSC-P-44	Masato Natori	Conductivity Enhancement of Mg-doped C_{60} Thin Films by Crystal Quality Improvement
OSC-P2-2	OSC-P-45	Eun Kyu Kim	Optical properties of metal oxide nano-particles embedded in the polyimide layer for photovoltaic applications
OSC-P2-3	OSC-P-46	Kwanghee Lee	The effect of poly(3,4-ethylenedioxythiophene):poly(styrene-sulfonate) on the open circuit voltage of inverted solar cell
OSC-P2-4	OSC-P-48	Seunghyup Yoo	Bendable inverted-type organic solar cells fabricated on stainless-steel foils
OSC-P2-5	OSC-P-49	Han Young Woo	Synthesis and Characterization of Indolo[3,2-b]carbazole-based Copolymers for Organic Solar Cells
OSC-P2-6	OSC-P-50	Fuh-Shyang Juang	Adjusting optical resonance thickness to increase the conversion efficiency of POLYMER SOLAR CELLS
OSC-P2-7	OSC-P-51	Pung Keun Song	Study on Mechanical and Electro-optical Properties of ITO/CeO_2 Films Deposited on PI Substrate for Flexible Organic Solar Cells
OSC-P2-8	OSC-P-52	Han Young Woo	Synthesis and Characterization of Fluorene-Bithiophene based Copolymers for Polymer Photovoltaic Cells
OSC-P2-9	OSC-P-53	Donggun Lim	Application of GZO transparent electrodes for flexible organic solar cells
OSC-P2-10	OSC-P-54	Jungho Hwang	Electrohydrodynamic Jet Printing of Polymer Blend for application to Heterojunction Organic Solar Cell
OSC-P2-11	OSC-P-55	Kyu Hwan Lee	The Characterization of Various ZnO Nanostructures by electrodeposition in Inverted Hybrid Solar cell

OSC-P2-12	OSC-P-56	Taiho Park	Synthesis of carbazole-based copolymers controlled polymer structures linearity in organic photovoltaic cells
OSC-P2-13	OSC-P-57	Taiho PARK	Energy level control of silole based polymer for high open circuit voltage in bulk heterojunction solar cell
OSC-P2-14	OSC-P-59	Yuji Yoshida	High open-circuit voltage and buffer layer effects in perylene diimide – polyfluorene based heterojunction solar cells
OSC-P2-15	OSC-P-60	Dong-Yu Kim	Synthesis of Fullerene Derivatives with Low LUMO Level for High Open Circuit Voltage in Organic Photovoltaic Cells
OSC-P2-16	OSC-P-61	Dong-Yu Kim	Vertical Distribution of Components for Achieving High Efficiency in Bulk Heterojucntion Polymer Solar Cells
OSC-P2-17	OSC-P-62	Hie Tae Moon	Trap Energy Level of P3HT: PCBM-71 Bulk Heterojuction Solar Cells with PICTS (Photo-Induced Current Transient Spectroscopy)
OSC-P2-18	OSC-P-63	Dong-Yu Kim	Highly Conductive Polymeric Films and Their Application to ITO-Free Organic solar cells
OSC-P2-19	OSC-P-64	Masafumi Yamashita	Annealing Effects of Bulk-heterojunction Type Photovoltaic Cells Based on Novel Soluble α-Alkyl oligothiophenes
OSC-P2-20	OSC-P-65	Hiroyuki Ogo	Polymer based organic solar cells fabricated by spin-coating and dip-coating and brush-coating Methods
OSC-P2-21	OSC-P-66	Krishnan Talkad	Modelling of degradation in peak dark current in P3HT: PCBM organic solar cells fabricated with Calcium-Aluminium and Lithium Fluoride-Aluminium cathodes.
OSC-P2-22	OSC-P-67	Kyungkon Kim	Inverted polymer solar cells using titanium oxide nanoparticles as an electron transporting layer
OSC-P2-23	OSC-P-68	Kilwon Cho	Effect of Annealing Solvent Solubility on the Performance of Poly(3-hexylthiophene) / Methanofullerene Solar Cells
OSC-P2-24	OSC-P-69	Kilwon Cho	The effect of Chemical Structure of Additives on the Performance of Organic Solar Cells
OSC-P2-25	OSC-P-70	Cho Seongjin	Performance improvement of P3HT:PCBM solar cell by using water-soluble conjugated polymer
OSC-P2-26	OSC-P-71	Kilwon Cho	High Efficiency Solar Cells Based on Preformed Poly (3-hexylthiophene) Nanowires
OSC-P2-27	OSC-P-72	Kilwon Cho	Control of the Morphology with P3HT Nanowire Structures based on Polymer: Fullerene Solar Cells via Solubility-induced Crystallization and Mild Thermal Treatment
OSC-P2-28	OSC-P-73		Cancelled
OSC-P2-29	OSC-P-74	Kilwon Cho	Performance Enhancement of Organic Solar Cells by Matching the Energy Levels of Three Photon-Harvesting Layers
OSC-P2-30	OSC-P-75	Hongsuk Suh	Novel conjugated polymers with fluorene backbone and C_{60}
OSC-P2-31	OSC-P-76	Hongsuk Suh	Novel Conjugated Polymer Based on Indenoindene Containing Benzothiadiazole and Thiophene Derivatives
OSC-P2-32	OSC-P-77	Han-Ki Kim	Characteristic of Indium zinc tin oxide electrode grown by linear facing target sputtering for organic solar cells.
OSC-P2-33	OSC-P-78	Han-Ki Kim	Characteristic of carbon nanotube electrode for flexible organic solar cells and characteristic of organic solar cells fabricated on carbon nanotube electrode
OSC-P2-34	OSC-P-79	Jae Hong Kim	Synthesis and Photovoltaic Properties of Novel Polymer Containing Perylene Bisimide for Organic Solar Cell
OSC-P2-35	OSC-P-80	Han-Ki Kim	Comparative study on properties of Indium-free GZO/Ag/GZO and AZO/Ag/AZO multilayer electrode grown by dual target DC sputtering at room temperature for organic photovoltaics
OSC-P2-36	OSC-P-81	Han-Ki Kim	Characteristics of flexible ITO/Ag/ITO electrode grown on PES substrate by continuous roll-to-roll sputtering process
OSC-P2-37	OSC-P-82	Donghwan Kim	Vertically aligned Silicon Nanowire/Carbon Nanotube Core/Shell Nanocomposites for Photovoltaic Applications
OSC-P2-38	OSC-P-83	Hee-Joon Kim	Ruthenium(II)/Tin(IV) Multiporphyrin Arrays toward Photovoltaic Supramolecular Materials
OSC-P2-39	OSC-P-84	Hee-Joon Kim	Novel Panchromatic Polymers with Tin(IV)-Porphyrins as Potential Sensitizers for Highly Efficient Solar Cells
OSC-P2-40	OSC-P-85	Han-Ki Kim	Effect of low resistivity ITO/Ag/ITO multilayer electrode in large area organic solar cell process
OSC-P2-41	OSC-P-86	Dong-Yu Kim	Characteristics of Polymer Solar Cells Depending On Conductivity of PEDOT:PSS
OSC-P2-42	OSC-P-87	Changhee Lee	Transparent electrode with ZnO nanoparticles in tandem organic solar cells
OSC-P2-43	OSC-P-88	Han-Ki Kim	Effect of atmosphere plasma treatment on the surface of flexible IZO and IZO-Ag-IZO electrode for organic solar cells
OSC-P2-44	OSC-P-89	Jae Hak Jung	Morphological and Optical Properties for P3HT/PCBM Solar Cells
CSP-P2-1	CSP-P-01	Dong-Hwan Jun	The effect of double layer window on III-V solar cells
CSP-P2-2	CSP-P-02	Jai-Yeoul Lee	Fabrication and Properties of Highly Oriented IZO/AZO Transparent Conducting Thin Films by PLD Process
CSP-P2-3	CSP-P-03	Xiuxun Han	Influence of substrate orientation on the N incorporation and

			optical behavior of GaAsN epilayers
CSP-P2-4	CSP-P-04	Takuo Sasaki	*In situ* real-time X-ray Reciprocal Space Mapping in InGaAs/GaAs(001) for Understanding Strain Relaxation Mechanisms
CSP-P2-5	CSP-P-05	Jong Ha Hwang	The effect of surface steps during crystal growth on minority carrier diffusion length of (In)GaAsN based solar cells
CSP-P2-6	CSP-P-06	Akihisa Sai	Indium composition dependence on strain relaxation mechanisms in InGaAs/GaAs(001)
CSP-P2-7	CSP-P-07	Boussairi Bouzazi	Recombination center in p-type GaAsN grown by Chemical beam Epitaxy
CSP-P2-8	CSP-P-08	Young-Hwan Kim	Design and fabrication of multilayer antireflection coating for high-efficiency III-V solar cell
CSP-P2-9	CSP-P-09	Dong Chan Shin	Effects of Al thin layer on the properties of ITO thin films
CSP-P2-10	CSP-P-10	Dong Chan Shin	Work Function Control of Functionally Graded ZnO+Ga_2O_3Thin Film for Solar Cell Applications
CSP-P2-11	CSP-P-11	Euijoon Yoon	Growth morphology of GaInP on Ge vicinal substrates for the triple junction solar cells
CSP-P2-12	CSP-P-12	Masafumi Yamaguchi	Analysis for radiation-resistance of sub-cells for InGaP-based 3-Junction solar cells based on minority-carrier lifetime properties
CSP-P2-13	CSP-P-13	Dong Chan Shin	Anti-reflection coating by using SiO_2–polymer composite layers for application of solar cells
CSP-P2-14	CSP-P-14	Hyo Jin Kim	Fabrication of AlGaAs/GaAs heteroface Solar cell with Back Surface Field layer
CSP-P2-15	CSP-P-15	Hidetoshi Suzuki	The origin of N induced scattering center in GaAsN grown by chemical beam epitaxy
CSP-P2-16	CSP-P-16	Tomoyuki Touse	Investigation of nonraditaive recombination and accumulation processes of photoexcited carriers in GaAsN for ultra high-efficiency four-junction solar cells
CSP-P2-17	CSP-P-17	Jong-Han Lee	The relation of between N-H complexes and electrical properties of GaAsN by using H implantation
CSP-P2-18	CSP-P-18	Yasuyuki Ota	Temperature characteristics analysis of InGaP/InGaAs/Ge triple-junction solar cell using circuit simulator
CSP-P2-19	CSP-P-19	Takahiko Honda	Electrical Properties of GaAsN Grown on GaAs Substrate with Different Step-Edge Atoms
CSP-P2-20	CSP-P-20	Jae-June Kim, Jae-Hyun Park, Young-Mo Koo, Gu Sung Kim	Conventional Wafer Bonding Technology for Tandem Photovoltanics

Poster 3: ASI, CIG

Presentation No.	Abstract No.	Corresponding author	Title
P3: 11/11 (Wed) 09:00-12:30			
ASI-P3-1	ASI-P-53	Sun Jin Yun	Texturing of Ga-doped ZnO Films for Solar Cell Applications
ASI-P3-2	ASI-P-54	Sang-Im Yoo	Effects of crystallinity and texturing on the electrical properties of transparent conducting oxide thin films
ASI-P3-3	ASI-P-55	Kyung S. Shin	The effect of hydrogen on the crystallinity of Si thin films prepared by ICP-assisted magnetron sputtering
ASI-P3-4	ASI-P-56	Jae-Hyeong Lee	Influence of hydrogen plasma exposure on electrical and optical properties on aluminum doped zinc oxide films deposited by r.f. magnetron sputtering
ASI-P3-5	ASI-P-57	Joong Kee Lee	A study on characteristics of hydrogenated silicon thin film on the textured substrate
ASI-P3-6	ASI-P-60	Koengsu Im	Deposition temperature profiling technique for high performance hydrogenated microcrystalline silicon solar cells
ASI-P3-7	ASI-P-61	Jae-Hyeong Lee	Effects of hydrogen incorporation and heat treatment on the properties of ZnO:Al films deposited on polymer substrate for flexible solar cell applications
ASI-P3-8	ASI-P-64	Sang Hyun Park	P type dopant effect on p a-Si:H/n c-Si interface in heterojunction solar cells
ASI-P3-9	ASI-P-65	Junsin Yi	A Study of SiNx Passivation Film by PECVD for the Application in Single Crystal Solar Cells
ASI-P3-10	ASI-P-66	Junsin Yi	Metastability of electrical bias stress in hydrogenated amorphous silicon for thin-film solar cell
ASI-P3-11	ASI-P-68	Seongjae Boo	Investigation on the absorption band shift of a-Si:H thin-film solar cells with various hydrogen dilutions for a-Si:H multi-junction solar cell applications
ASI-P3-12	ASI-P-69	S.Y. Lee	Use of Spectroscopic Ellipsometry to Optimize Amorphous Si Solar Cells for Multi-Junction Thin Film Si Solar Cell Application
ASI-P3-13	ASI-P-70	Donghwan Kim	Characteristics of high haze transparent conductive oxide for thin film solar cell
ASI-P3-14	ASI-P-71	Byungwhan Kim	Impact of bias power-induced ion energy on refractive index room-

			temperature deposited in SiH_4-NH_3-N_2 pulsed plasma
ASI-P3-15	ASI-P-73	Jian Ni	Influence of Gas Pressure on the Properties of a-Si:H Films Deposited at Low Temperature of 125℃
ASI-P3-16	ASI-P-74	Shuhei Yoshiba	Influence of Dopant in Microcrystalline Silicon Thin Films Prepared by Remote PECVD Technique
ASI-P3-17	ASI-P-75	Donghwan Kim	Passivation properties of doped amorphous silicon on silicon heterojunction solar cells
ASI-P3-18	ASI-P-76	Yoo Jin Lee	Double junction structured thin film solar cells using amorphous and polycrystalline silicon
ASI-P3-19	ASI-P-78	Jin-Won Chung	Improved current matching in a-Si/mc-Si tandem solar cells by band-gap engineering of top cell and SiO:H inter-layer
ASI-P3-20	ASI-P-79	Ji Hoon Jang, Jeong Chul Lee	Improvement of material properties of intrinsic microcrystalline silicon in superstrate p-i-n solar cell by controlling crystallinity of p window layers
ASI-P3-21	ASI-P-80	Jeong Chul Lee	Changes in structural, electrical and optical properties of textured ZnO:Al films by post-annealing
ASI-P3-22	ASI-P-81	J.H. Shim	Theoretical Analysis of Multi-junction Si Thin Film Solar Cell
ASI-P3-23	ASI-P-82	Jung-Ho Lee	Ni-catalyzed Si and $Si_{1-x}Ge_x$ wire arrays for solarcell applications
ASI-P3-24	ASI-P-83	Do Young Kim	The development of rough ZnO:Al TCO for solar cell efficiency improvement
ASI-P3-25	ASI-P-88	MunPyo Hong	Novel deposition technology for nano-crystalline silicon thin film with various optical band gap at low temperature by reactive particle beam assisted CVD system
ASI-P3-26	ASI-P-89	Sheng-Hui Chen	Grading bandgap micromorphous silicon thin film solar cells
ASI-P3-27	ASI-P-90	Shuichi Nonomura	Nano-scale current voltage characteristics of solar cell with light irradiated
ASI-P3-28	ASI-P-91	Chien Liang Wu	Influence of Two-Step Growth Technique on Characteristic of GZO Thin Films for Magnetron Sputter Deposition System
ASI-P3-29	ASI-P-92	J. Wong	SHALLOW RECOMBINATION LEVEL IN THIN-FILM POLYCRYSTALLINE SILICON ON GLASS SOLAR CELLS
CIG-P3-1	CIG-P-02	Tamotsu Okamoto	Effects of $CdCl_2$ addition to CdTe source in close-spaced sublimation of CdTe thin film solar cells
CIG-P3-2	CIG-P-03	Byoungdong Kim	The influence of the Cu-Ga precursor depositon power on the CIGS performance.
CIG-P3-3	CIG-P-06	Oleksiy Penkov	Effect of post-deposition treatment on electrical properties of ZnO films deposited by a DC Arc Plasmatron
CIG-P3-4	CIG-P-07	Chung-Hsien Wu	Preparation and Properties of ZnS used in CIGS Thin Film Solar Cells
CIG-P3-5	CIG-P-08	Byung Tae Ahn	Characterization of Chemical Bath Deposited ZnS Thin Films for Cu(In,Ga)Se_2 Solar Cells
CIG-P3-6	CIG-P-09	JunHo Kim	Deposition of $CuInS_2$ Films by Electrostatic Ultrasonic Spray Pyrolysis
CIG-P3-7	CIG-P-10	JunHo Kim	Comparative Study of Cu2ZnSnS4 Film Growth
CIG-P3-8	CIG-P-11	SangHo Sohn	The study of physical property of cadmium sulfide thin film depending on process temperature , mole concentration and stirrer rpm in chemical bath deposition method
CIG-P3-9	CIG-P-12	Jin Kyu Kang	Electrodeposition of CIGS thin films using an atactic material
CIG-P3-10	CIG-P-13	Shigeyuki Nakamura	Preparation of $CuInS_2$ Thin Films by Spin-coat Method
CIG-P3-11	CIG-P-14	Kyu-Seok Lee	A Theoretical Model for Thin-Film Cu(In,Ga)Se_2 Solar Cells with Non-negligible Rear Surface Reflection
CIG-P3-12	CIG-P-15	Sangcheol Park	The study of CIGS thin film fabricated by sputtering method with CIGS target
CIG-P3-13	CIG-P-16	Jwayeon Kim	The vacuum and H_2/Ar gas annealing effect of ZnO thin films deposited by RF magnetron sputtering system
CIG-P3-14	CIG-P-17	dongwook choi	CIGS solar cell adopted patterned Mo back contact
CIG-P3-15	CIG-P-18	Chan-Wook Jeon	Investigatoin of ZnO/CdS/$CuIn_xGa_{1-x}Se_2$ interface reaction by using hot-stage TEM
CIG-P3-16	CIG-P-20	C.G Kim	Preperation of CIS absorption layer using solution process
CIG-P3-17	CIG-P-21	Jin-Soo Hwang	Fast Synthesis of $CuInSe_2$ (CIS) Nanoparticles by Microwave-assisted Solvothermal Method
CIG-P3-18	CIG-P-22	Y. D. Chung	Fabrication and Characterization of Cu(In,Ga)Se_2 Thin-Film Solar Cell Mini-Modules
CIG-P3-19	CIG-P-23	Jin-Soo Hwang	Microwave-assisted Solvothermal Synthesis of CuGaSe2, CuInSe2, and Cu(InGa)Se2 Nanoparticles
CIG-P3-20	CIG-P-24	Do Kyung Kim	Characterization of Carbon Coated CdTe Nanocables Synthesized via a Hydrothermal Process
CIG-P3-21	CIG-P-25	Sun Ho Kim	Formation of Cu_xTe back contacts for CdTe solar cells using Cu-Te deposition
CIG-P3-22	CIG-P-27	Byoung Koun Min	Low temperature synthesis of quaternary chalcogenide nanoparticles for printable CIGS absorber layers
CIG-P3-23	CIG-P-28	Youngguk Son	Effect of oxygen partial pressure ratios on the properties of Al-doped ZnO thin films prepared by radio frequency sputtering

CIG-P3-24	CIG-P-29	Dung-Ching Perng	$CuInAlSe_2$ Graded Bandgap Modulation Using Mo(Al) Back Contact
CIG-P3-25	CIG-P-30	Ji-Beom Yoo	Synthesis of $CuInSe_2$ nanoparticles via a solvothermal route
CIG-P3-26	CIG-P-31	Dae-Hyung Cho	Growth and Characterization of Indium-Tin-Oxide and ZnO:Al Thin Films on i-ZnO/Glass for Window Layers of $Cu(In,Ga)Se_2$ Thin-Film Solar Cells
CIG-P3-27	CIG-P-32	Chan-Wook Jeon	Properties of $Cu(In,Ga)Se_2$ thin film solar cells adopting Cd_2SnO_4 as window layer
CIG-P3-28	CIG-P-33	Tatsuya Miyamoto	A study of the photovoltaic performance of the DLC thin films by change of the sp^3/sp^2 ratio
CIG-P3-29	CIG-P-34	Toshiyuki Yamaguchi	Preparation of $Cu(In,Ga)(S,Se)_2$ thin films by sequential evaporation and annealing in sulfur atmosphere
CIG-P3-30	CIG-P-35	Satoru Seike	Development of High Efficiency CIGS Integrated Submodules Using In-line Deposition Technology
CIG-P3-31	CIG-P-36	Yoji Akaki	EFFECT OF ANNEALING FOR IN-RICH CUINS2 THIN FILMS PREPARED BY A VACUUM EVAPORATION METHOD
CIG-P3-32	CIG-P-37	Yoji Akaki	EFFECT OF H2S ANNEALING FOR AGINS2 THIN FILMS PREPARED BY A VACUUM EVAPORATION METHOD
CIG-P3-33	CIG-P-38	Yoji Akaki	OPTICAL PROPERTY OF AGINS2 THIN FILMS PREPARED BY A VACUUM EVAPORATION METHOD
CIG-P3-34	CIG-P-39	Mutsumi Sugiyama	Impacts of proton, alpha-ray, and gamma-ray irradiation on the optical and electrical properties of $Cu(In,Ga)Se_2$ thin films and solar cells
CIG-P3-35	CIG-P-40	Mutsumi Sugiyama	Cu(In,Al)Se2 thin film growth by the selenization method using diethylselenide
CIG-P3-36	CIG-P-41	Byungjoo Lee	The Optimization of the $MoSe_2$ Formation for the High Efficiency CIGS Solar Cells
CIG-P3-37	CIG-P-42	Woosu Lee	Comparative study of Al and Boron doped ZnO for the high efficiency CIGS solar cell
CIG-P3-38	CIG-P-43	Rachmat Adhi Wibowo	Crystallization and densification of stannite $Cu_2ZnSnSe_4$ compound by solid state reaction using elemental powders
CIG-P3-39	CIG-P-44	Duk-Young Jung	One-step Electrochemical Deposition of CIS thin film for photovoltaic cells
CIG-P3-40	CIG-P-45	Duk-Young Jung	Preparation of Zn(O,S) thin films by chemical bath deposition for Cu (In,Ga)Se_2 solar cells
CIG-P3-41	CIG-P-47	JungGyu Nam	Characteristics of Zn(S,O,OH) Buffer Layer for High Efficiency I-III-VI Compound Solar Cell
CIG-P3-42	CIG-P-48	Chan-Wook Jeon	Characterization of the CIGS Solar Cell with a ZnO Micro Rods Window layer
CIG-P3-43	CIG-P-50	Sangcheol Park	Design and Characteristics of CIGS Mini-modules
CIG-P3-44	CIG-P-51	Kyooho Kim	Characteristics of $Cu_2ZnSnSe_4$ Thin Film Solar Absorber Prepared by PLD using Solid Target
CIG-P3-45	CIG-P-53	Woosu Lee	A high compositional uniformity and reproducibility of DC magnetron sputtered CuGa-In layer for large area CIGS solar cell performance
CIG-P3-46	CIG-P-55	Ji Beom Yoo	Preparation and properties of $CuInSe_2$ thin film formed by thermal annealing of binary layers
CIG-P3-47	CIG-P-57	Ahn Byung Tae	Formation of CZTS thin films by rapid thermal annealing of ZnS/SnS/Cu precursors in Sulfur
CIG-P3-48	CIG-P-58	Ji Beom Yoo	Development of CuInSeS nanocrystal using non-vacuum process
CIG-P3-49	CIG-P-59	Ji-Beom Yoo	CIGS thin film formation by using metal-organic chemical vapor deposition
CIG-P3-50	CIG-P-60	Kyoo Ho Kim	Single step fabrication of monolayer quaternary $Cu_2ZnSnSe_4$ thin films from quaternary compound targets by RF magnetron sputtering
CIG-P3-51	CIG-P-61	Ilsin An	CIGS Films Investigated by Near Infrared Spectroscopic Ellipsometry
CIG-P3-52	CIG-P-62	Si Ok Ryu	Synthesis and Characterization of $CuInSe_2$ Thin Films for Photovoltaic Cells by a Solution-based Deposition Method
CIG-P3-53	CIG-P-63	Si Ok Ryu	Synthesis and Characterization of Polycrystalline $CuInS_2$ Thin Films for Solar Cell Devices at Low Temperature Processing Conditions
CIG-P3-54	CIG-P-64	Jae-Young Leem	Structural and Optical Properties of ZnO Thin Films Grown on Thermal Annealed ZnO Buffer Layers in Oxygen Plasma by Plasma-Assisted Molecular Beam Epitaxy
CIG-P3-55	CIG-P-65	Jae-Young Leem	Improvement of Crystallinity of ZnO Thin Films Grown on Nitrogen-Passivated Si (100) Substrates by Plasma-Assisted Molecular Beam Epitaxy and Its Optical Properties
CIG-P3-56	CIG-P-67	Byung Tae Ahn	Structural and electrical properties of $Cu(In_{0.7}Ga_{0.3})Se_2$ thin film prepared by selenization of co-sputtered $Cu_{0.4}In_{0.6}$, $Cu_{0.5}Ga_{0.5}$, and Cu metallic precursor
CIG-P3-57	CIG-P-68	Tokio Nakada	CIGS Thin Film Solar Cells Fabricated on Polyimide Foils
CIG-P3-58	CIG-P-69	Byung Tae Ahn	Structural properties of $Cu(In_{0.7}Ga_{0.3})Se_2$ thin film prepared by selenization of co-sputtered $Cu_{40}In_{60}$, $Cu_{50}Ga_{50}$, and Cu_2Se precursor
CIG-P3-59	CIG-P-70	Yeong Min Shin	Doping properties of CIGS absorber layer using NaF interlayer on Mo

			substrate
CIG-P3-60	CIG-P-71	Jae-Young Leem	Effects of Crystallization of Amorphous ZnO layer on Structural and Optical Properties of ZnO Thin Films by Plasma-Assisted Molecular Beam Epitaxy
CIG-P3-61	CIG-P-140	Donghwan Kim	Fabrication of CdTe Thin Film & Nano Pattern Grown on Flexible Substrate

Poster 4: CSI, OSC, TPV

Presentation No.	Abstract No.	Corresponding author	Title
P4: 11/11 (Wed) 14:00-17:30			
CSI-P4-1	CSI-P-02	Kensuke Nishioka	Shape controlled antireflection structure formed by wet etching with catalysis of silver nano particle
CSI-P4-2	CSI-P-05	Junsin Yi	Large-area Multicrystalline Silicon Solar Cell Fabrication Using Reactive Ion Etching (RIE)
CSI-P4-3	CSI-P-07	Yun Chan Kang	Characterstics of silver electrodes formed from the nano-sized silver powders coated with Pb-based glass material
CSI-P4-4	CSI-P-11	Bo Yun Jang	Induction Melting Process using Segmented Graphite Crucible for Silicon Melting
CSI-P4-5	CSI-P-12	Hyo Sik Chang	Effect of Passivation Process in Upgraded Metallurgical Grade (UMG)-Silicon Solar Cells
CSI-P4-6	CSI-P-17	Myung-Ick Hwang	Development of advanced screen printing and plating process for high-efficiency c-Si solar cell
CSI-P4-7	CSI-P-18	Jong Hwan Kim	DAMAGE-FREE Reactive ion etch for HIGH EFFICIENCIES LARGE-AREA MULTI-Crystalline SILICON SOLAR CELLS
CSI-P4-8	CSI-P-20	Jin Hyung Lee	ANALYSIS OF SERIES RESISTANCE OF CRYSTALLINE SILICON SOLAR CELL WITH TWO-LAYER FRONT METALLIZATION BASED ON LIGHT-INDUCED PLATING
CSI-P4-9	CSI-P-25	Wooyoung Yoon	Effects of the segregation ratio change on silicon refining during the fractional melting
CSI-P4-10	CSI-P-26	Wooyoung Yoon	Metal impurities behaviors of silicon in fractional melting process
CSI-P4-11	CSI-P-29	Yun Chan Kang	Characteristics of Pb-based glass powders prepared by spray pyrolysis as inorganic additive of Al paste for solar cell
CSI-P4-12	CSI-P-31	Fumiya Kadono	TEXTURE ETCHING FOR SILICON SOLAR CELLS USING HYDROGEN REMOTE PLASMA
CSI-P4-13	CSI-P-32	Hyun-Ho Lee	A Study on Optimization of Double-Layer Antireflection Coating for Surface Textured Single-Crystalline Silicon Solar Cells
CSI-P4-14	CSI-P-34	Joo-Youl Huh	Inkjet-printed Ag contacts and their electrical properties for crystalline silicon solar cells
CSI-P4-15	CSI-P-36	B. P. Lee	Refining of MG-Si by a hybrid melting method using steam plasma and EMC
CSI-P4-16	CSI-P-38	Junsin Yi	Wet Texturing Process of Thin Crystalline Silicon Solar Cell for Low Cost and High Efficiency
CSI-P4-17	CSI-P-40	Young-Kwan Kim	Melting characteristic of silicon powder produced during back grinding process in the semiconducter fabrication
CSI-P4-18	CSI-P-41	Natalita Maulani Nursam	Investigation of Si-SiO2 Interface Properties in Boron Diffused Emitter
CSI-P4-19	CSI-P-42	V.A. Popovich	EFFECT OF SILICON SOLAR CELL PROCESSING PARAMETERS AND CRYSTALLINITY ON MECHANICAL STRENGTH
CSI-P4-20	CSI-P-43	Hirohi Nagayoshi	LOW TEMPERATURE SURFACE PASSIVATION OF SILICON USING SiO2 PREPARED BY PERHYDROPOLYSILAZANE
CSI-P4-21	CSI-P-44	Sang-Ho Kim	Silver/Carbon alloy paste for solar cell applications
CSI-P4-22	CSI-P-45	Wooyoung Yoon	Formation of silicon sheet on rotating substrate
CSI-P4-23	CSI-P-47	Gi Chung Kwon	QUANTUM EFFICIENCY MEASUREMENT IN CRYSTALL Si SOLAR CELL BY RIE SURFACE TEXTURING
CSI-P4-24	CSI-P-48	Gi Chung Kwon	STUDY OF LOW REFLECTANCE BY RIE SURFACE TEXTURE PROCESS IN CRYSTALL SILICON SOLAR CELL
CSI-P4-25	CSI-P-50	Bo Yun Jang	Electron Beam Melting and Refining Process of Silicon for PV applications
CSI-P4-26	CSI-P-51	Lim Dong Gun	Optimizing Spin on Doping Process of Multicrystalline Ribbon-Silicon for Solar Cell Application
CSI-P4-27	CSI-P-55	Sanjay Kumar Srivastava	Silver catalyzed nano-texturing of silicon surfaces for solar cell applications
CSI-P4-28	CSI-P-56	Joo-Youl Huh	Effect of lead-free glass frit chemistry on high quality Ag thick film contacts for silicon solar cells

CSI-P4-29	CSI-P-70	V.A. Popovich	Microstructural and mechanical characterisation of Aluminium back contact layers on silicon solar cells
CSI-P4-30	CSI-P-74	Donghwan Kim	Effect of rear passivation layer on back surface field of Al back contact
CSI-P4-31	CSI-P-75	Donghwan Kim	Control of the emitter doping concentration using hot water oxidation for crystalline silicon solar cells
CSI-P4-32	CSI-P-77	Donghwan Kim	Investigation of the Strength distribution by Saw Damage Etching Conditions in Si Wafers for Silicon Solar Cells
CSI-P4-33	CSI-P-78	Jinmo Kang, Sung hoon Woo, Yeon kyung Kim, Sumi Yang, Sungbong Roh, Seonghoe Jeong	Study on Characteristics of Multicrystalline Silicon Texturing for Solar Cell Fabrication
CSI-P4-34	CSI-P-80	Minkyu Ju	Isotropic Etching for Solar Grade Multi Silicon Wafers by Variable Composition of HF and HNO_3 Solution
CSI-P4-35	CSI-P-81	Kyeong-Seok Lee	Optical scattering in quasi-monocrystalline silicon
CSI-P4-36	CSI-P-82	Sumi Yang, Sang-yoon Jung, Sung-yong Shin, Seung-min Shin	Analysis of low shunt resistance solar cell and the influence low shunt resistance on module performance
CSI-P4-37	CSI-P-83	Young kwan Kim	Investigation of the Boron doping method into silicon crystal
CSI-P4-38	CSI-P-85	Junsin Yi	Analysis of Screen Printed Fine Line on Crystalline Silicon Solar Cell
CSI-P4-39	CSI-P-86	Hiroshi Mizuseki	Artificially Controlled Grain Orientation in Bicrystalline Silicon: A Computational Study
CSI-P4-40	CSI-P-89	Tatsuya Matsumoto	Pseudo-Epitaxial Growth of Silicon Microliquid Dropped on Hydrogen Terminated Silicon Wafer Surface
CSI-P4-41	CSI-P-93	Seungyup Baek	The effect of firing condition on electrical properties of commercial screen- printed solar cell
CSI-P4-42	CSI-P-94	Ki-young Kim	Electrochemical reduction of SiO_2 pellet in molten LiCl-Li_2O for SOG-Si
CSI-P4-43	CSI-P-98	Pierre Saint-Cast	EXCELLENT PASSIVATION OF CRYSTALLINE SILICON BY INDUSTRIAL INLINE PECVD ALUMINUM OXIDE
OSC-P4-1	OSC-P-01	Ami Elazari	Organic PV Cells, Electricity Collected from Plant Photosynthesis - Feasibility and Demonstration
OSC-P4-2	OSC-P-02	Byeong-Hyeok Sohn	Ordered TiO_2 Nanorods by Polymer Nanotemplates for the Application to Photovoltaic Cells
OSC-P4-3	OSC-P-03	Sunyoung Sohn	Extraction of electrical parameters as a function of post-annealing in organic solar cells
OSC-P4-4	OSC-P-04	Leeyih Wang	Effect of regioregularity of poly(3-hexylthiophene) on the thermal stability of P3HT-based solar cells
OSC-P4-5	OSC-P-05	Yong-Sang Kim	Study on the spinodal decomposition of polymer and fullerene layer for highly efficient organic solar cells
OSC-P4-6	OSC-P-06	Sang-Hun Nam	Physical properties of ZnO thin films for hybrid solar cells application
OSC-P4-7	OSC-P-07	Snag-Jin Moon	Influence of modified anode buffer layers on the performance of organic photovoltaic devices
OSC-P4-8	OSC-P-08	Jin Jang	Junction properties and internal electric field of P3HT:PCBM solar cells
OSC-P4-9	OSC-P-09	Yoon Soo Han	Effects of fluorinated-liquid crystals as an additive on the performance of polymer solar cells
OSC-P4-10	OSC-P-10	Jae-Wook Kang	Optimized cell structure for low series resistance introducing grid electrode in large area organic photovoltaic devices
OSC-P4-11	OSC-P-13	Jang-Joo Kim	The interfacial properties between metal electrodes and organic layerin P3HT:PCBM based organic photovoltaic devices
OSC-P4-12	OSC-P-15	Sang-Jin Moon	Novel Fullerene Derivatives for Organic Solar Cells
OSC-P4-13	OSC-P-16	Jin Jang	Effect of Chemical Doping on the Performance of Organic Bulk Heterojunction Solar Cells
OSC-P4-14	OSC-P-18	Sang-Jin Moon	Synthesis and Properties of Crystalline Low Band-gap copolymers containing Oligothiophene for Potential Application in Organic Photovoltaic cell
OSC-P4-15	OSC-P-19	Sang-Jin Moon	Synthesis of New Poly(2,7-Carbazole) Derivatives and Their Applications to Photovoltaic Cells
OSC-P4-16	OSC-P-20	Youngkyoo Kim	Effect of controlled hole-collecting buffer layer on the performance of polymer solar cells
OSC-P4-17	OSC-P-21	Do-Geun Kim	A new encapsulation solution for organic photovoltaic
OSC-P4-18	OSC-P-22	Jae-Wook Kang	Reducing of series resistance in large-area organic photovoltaic using metal grids
OSC-P4-19	OSC-P-23	Kwanghee Lee	Highly Conductive Polyaniline Electrode for Flexible Polymer Electronic Devices
OSC-P4-20	OSC-P-24	Woochul Kim	Efficiency Enhancement of Organic Solar Sells by

			Incorporating ZnO Nanoparticles
OSC-P4-21	OSC-P-25	Byeong-Kwon Ju	Effects of thermal annealing on the efficiency of bulk heterojunction organic photovoltaic cells
OSC-P4-22	OSC-P-26	Choong Hun Lee	The effect of LiF buffer layer on the organic solar cells
OSC-P4-23	OSC-P-27	Shin-Won Kang	Effect of core and core/shell CdSe QD to the Polymer Solar Cells
OSC-P4-24	OSC-P-28	Sung Cheol Yoon	New Approach of Enhancing Organic Photovoltaic Cells Performance By Improving LUMO Level of Acceptors
OSC-P4-25	OSC-P-29	Kwanghee Lee	Novel conjugated copolymer with donor-acceptor type based on 2,7-dihydroindeno[2,1-*a*]indene for polymer solar cells
OSC-P4-26	OSC-P-30	Youngkyoo Kim	Influence of interface treatments on the performance of polymer solar cells
OSC-P4-27	OSC-P-31	Kwanghee Lee	The Mechanism of High Open-Circuit Voltage in Tandem Polymer Solar Cells Incorporated with Titanium Oxide/PEDOT:PSS Inter-layers
OSC-P4-28	OSC-P-32	Soon-Ki Kwon	Synthesis and Characterization of Novel High Soluble Fullerene Derivative for Organic Photovoltaic Cell
OSC-P4-29	OSC-P-33	Do Hoon Hwang	New conjugated polymer composed of pyrene and bithiophene for organic solar cells
OSC-P4-30	OSC-P-34	Masahiko Kitagawa	TiO_2:MoO_3 Interface for P3HT:PCBM Bulk Hetero-Junction Solar Cells
OSC-P4-31	OSC-P-35	Masahiko Kitagawa	Widening of Harvesting Layer and Area of P3HT/PCBM Bulk-Heterojunction Photovoltaic Cells
OSC-P4-32	OSC-P-36	Do Hoon Hwang	New organic semi-conducting polymer for organic solar cells
OSC-P4-33	OSC-P-37	Heeyeop Chae	Effects of Thermal Annealing on Gravure Printed Organic Layer for Polymer Solar Cells
OSC-P4-34	OSC-P-38	Kwanghee Lee	New Architecture for Stable Polymer Solar Cells Using Solution-Based Titanium Oxide as a Buffer Layer
OSC-P4-35	OSC-P-39	Sung Kyu Park	The influence of glycerol doped PEDOT:PSS and Ag buffer layer on power conversion efficiency of semitransparent organic photovoltaic devices
OSC-P4-36	OSC-P-40	Kwanghee Lee	Control of Vertical Distribution of Bulkheterojunction Solar Cells using An unconventional Spin Casting Method
OSC-P4-37	OSC-P-41	Yong Bae Kim	Electronic transport analysis of newly designed organic solar cell
OSC-P4-38	OSC-P-42	Kwanghee Lee	Solution Processed Niobium doped Titanium Oxide Layer in Polymer Solar Cells
OSC-P4-39	OSC-P-43	Gyuseok Choi	Vertical structure of Polymer photovoltaic layer based on organic solar cell
TPV-P4-1	TPV-P-01	Ami Elazari	MULTI SOLAR DESALINATION PLANT
TPV-P4-2	TPV-P-04	Takeyoshi Kato	A Study on Difference in Regional Performance of Photovoltaic Power Generation Systems in Various Urban Districts of different Land Use
TPV-P4-3	TPV-P-05	Yingning Qiu	Efficiency of Terrestrial Photovoltaic Systems
TPV-P4-4	TPV-P-06	Jung-Hun So	Performance improvement and optimization of gird-connected PV Systems
TPV-P4-5	TPV-P-07	Satoshi Takayama	Study on Rescheduling of PV Power Station Output Based on Latest Solar Radiation Forecast
TPV-P4-6	TPV-P-08	Tanes Tanitteerapan	Cellular phone battery charger for photovoltaic power System based on High Efficiency Boost converter
TPV-P4-7	TPV-P-09	tanes tanitteerapan	Car walker using Photovoltaic powered DC-DC boost Converters
TPV-P4-8	TPV-P-10	tanes Tanitteerapan	Thermoelectric Cooling box for photovoltaic systems
TPV-P4-9	TPV-P-11	Tanes Tanitteerapan	Potovoltaic powered wireless microphone system for Outdoor activities
TPV-P4-10	TPV-P-12	Tanes Tanitteerapan	photovoltaic powered battery charger for laptop computer based on High Efficiency Boost converter
TPV-P4-11	TPV-P-13	Tanes Tanitteerapan	High efficiency power charger for Solar energy power syetem based on thermoelectric cells using boost converter
TPV-P4-12	TPV-P-14	Tanes Tanitteerapan	photovoltaic powered immitation of bonfire for scout surrounding bonfire activities
TPV-P4-13	TPV-P-15	Tanes Tanitteerapan	photovoltaic power supply for laptop computer based on microcontroller controlled Boost converters
TPV-P4-14	TPV-P-16	Tanes Tanitteerapan	Power Indicator system for photovoltaic power grids
TPV-P4-15	TPV-P-17	Kyeongwon Lee	Conceptual Design of Robot System to Clean and Monitor the Surface of Large Scale Solar Cell Panels

Presentation No.	Abstract No.	Corresponding author	Title
P5: 11/12 (Thu) 09:00-12:30			
DSC-P5-1	DSC-P-50	Youl-Moon Sung	Titanium-doped indium oxide fabrication by rf magnetron sputtering for dye-sensitized solar cells application
DSC-P5-2	DSC-P-51	Jwayeon kim	A study on sintering temperature and film thickness of TiO_2 electrode for Dye-Sensitized Solar Cells
DSC-P5-3	DSC-P-52	Byung Tae Ahn	The studies of defect behavior in Nb-doped nanocrystalline TiO_2 layers
DSC-P5-4	DSC-P-53	O-Bong Yang	Mesoporous nanocrystalline TiO2 electrodes for flexible dye sensitized solar cells
DSC-P5-5	DSC-P-54	O-Bong Yang	A mixed inorganic-organic dye system with enhanced photovoltaic properties of dye sensitized solar cells
DSC-P5-6	DSC-P-55	O-Bong Yang	Effect of inorganic nanofiller in gel electrolyte on the performance and stability of solid-state dye sensitized solar cells
DSC-P5-7	DSC-P-56	gyuseok Choi	High perpormance photovoltaics cells by SWNT
DSC-P5-8	DSC-P-57	Yongseok Jun	Dye sensitized solar cells fabricated on ZnO nano-rod assisted electrode.
DSC-P5-9	DSC-P-58	Sang-Ho Kim	An interlayer between bus electrode of TCO and mesoporous TiO_2 electrode in dye sensitized solar cells
DSC-P5-10	DSC-P-59	Sang-Ho Kim	Surface modification of TiO_2 semiconductor electrode by various overlayers coating and atmospheric plasma treatment for dye sensitized solar cells
DSC-P5-11	DSC-P-60	Sang-Ho Kim	Carbon nano tube added Pt/Carbon black count electrode for dye-sensitized solar cell
DSC-P5-12	DSC-P-61	Jin-Kook Lee	Syntheses and Photovoltaic Properties of Polymeric Sensitizers Using Thiophene-based copolymer Derivatives for Dye-Sensitized Solar Cells
DSC-P5-13	DSC-P-62	Daeho Yoon	Synthesis of Ti_3O_5 powders by Liquid Phase Precursor with N_2/H_2 Reduction process
DSC-P5-14	DSC-P-63	Jong Sung Kim	The effect of sol-gel parameters on the formation of Nb_2O_5 thin film as electron-blocking layer in dye-sensitized solar cell
DSC-P5-15	DSC-P-64	Mi-Ra Kim	Dye-Sensitized Solar Cells based on Electrospun polymer Blend Nanofibers as Electrolyte
DSC-P5-16	DSC-P-65	Gunyoung Jung	Fabrication of Vertically Aligned Various ZnO Nanostructures and Their Application to XSCs Electrode
DSC-P5-17	DSC-P-66	Hironori Arakawa	Synthesis and Characterization of novel Terpyridyl (β-diketonato) Ru(II) sensitizing dye with CF_2H group on diketonato ligand for Dye-Sensitized Solar Cell
DSC-P5-18	DSC-P-67	Hee-Je Kim	The fabrication of dye-sensitized solar cell W-series module with different dyes
DSC-P5-19	DSC-P-69	Dong Sik Bae	Synthesis and Characterization of Fe doped TiO_2 Nanoparticles by a Sol-Gel and Hydrothermal Process
DSC-P5-20	DSC-P-70	Ho-Gyeong Yun	Dye-sensitized solar cell with TiO_2 nano-particles on the TiO_2 nano-tube grown Ti substrates
DSC-P5-21	DSC-P-71	C.D. Lokhande	Synthesis of cadmium hydroxide nanowires for dye sensitized solar cell applications
DSC-P5-22	DSC-P-72	Maeng-Eun Lee	A density functional theory study of additives in electrolytes of dye sensitized solar cell
DSC-P5-23	DSC-P-73	Young Soo Jeong	ZnO Nanostructures Based Photoanode
DSC-P5-24	DSC-P-74	Kug Sun Hong	Electronic band structures, Photoelectrochemical properties and dye-sensitized solar cell performance of divalent metal tungstates, MWO_4 (M = Ca, Sr, Zn, Mg, Cu)
DSC-P5-25	DSC-P-75	Young soo Jeong	Electro-deposited ZnO nanowire based Dye-sensitized solar cell
DSC-P5-26	DSC-P-76	Sung Hoon Joo	High Efficiency of Dye-Sensitized Solar Cells Based on Metal-Free Triphenylamine Derivatives
DSC-P5-27	DSC-P-77	Won Seok Choi	Growth of metal-free CNT on glass substrate for application to counter electrode of DSSC
DSC-P5-28	DSC-P-78	Young-Gab Chun	Layer-Structured TiO_2 Electrode for Dye Sensitized Solar Cells
DSC-P5-29	DSC-P-79	Hyungsun Kim	Durability of Pb-Free Frits on Electrolytes for Dye-Sensitized Solar Cells
DSC-P5-30	DSC-P-80	Michael Grätzel	High efficient donor–acceptor ruthenium complex for dye-sensitized solar cell applications
DSC-P5-31	DSC-P-81	Byoung Koun Min	The promoting effect of gold nanoparticles on dye-sensitized solar cells
DSC-P5-32	DSC-P-82	Bhaskar Bhattacharya, Jung-Ki Park	Effect of redox species and dye co-sensitization on CdS-QD sensitized solar cells
DSC-P5-33	DSC-P-83	Su-Bin Song	Performance Optimization of the Dye-sensitized Solar Cell using a two-region Electrical Model
DSC-P5-34	DSC-P-84	Jin Kon Kim	Molecular design and synthesis of Ruthenium(II) sensitizers for High Efficient Dye-sensitized nanocrystalline TiO2 solar cells

DSC-P5-35	DSC-P-85	Sang-Wha Lee	The effect of Ti thin layer on the performance of dye-sensitized TiO2 films and the characterization of surface morphology
DSC-P5-36	DSC-P-86	Ahmad Umar	Growth, properties and dye-sensitized solar cells applications of ZnO nanorods grown by low-temperature solution process
DSC-P5-37	DSC-P-87	Ahmad Umar	Rapid synthesis and dye-sensitized solar cell applications of hexagonal-shaped ZnO nanorods
DSC-P5-38	DSC-P-88	Yuh-Lang Lee	High efficiency Gel State electrolyte based on polyacrylonitrile copolymer for Dye-Sensitized Solar Cell Application
DSC-P5-39	DSC-P-89	Kug Sun Hong	Compact Layer effects on Optical properties of Photoelectrodes for Photon-to-Electric Energy Conversion Devices
DSC-P5-40	DSC-P-90	Sang-Woo Joo, Jae-Joon Lee	Thermal stability of the $(Bu_4N)_2[Ru(dcbpyH)_2$-$(NCS)_2]$ dye-sensitized nanocrystalline TiO_2 solar cells
DSC-P5-41	DSC-P-91	Min Jae Ko	Low Temperature Prepared Polymer/TiO_2 Composite Electrode for Plastic Dye-Sensitized Solar Cells
DSC-P5-42	DSC-P-92	Jyh-Ming Ting	Thermal Treatment of TiO_2 Layer Under Different Environments for Enhanced Cell Efficiencies
DSC-P5-43	DSC-P-93	Han-Ki Kim	Characteristics of RF sputtered TiO_2 buffer layer for dye sensitized solar cells
DSC-P5-44	DSC-P-94	Kug Sun Hong	3D hierarchical TiO_2 nanostructure: Synthesis, Characterization and dye-sensitized solar cells performance
DSC-P5-45	DSC-P-95	Yu-Ju Shin	Nano-grain SnO_2 electrodes for high conversion efficiency SnO_2-DSSC
DSC-P5-46	DSC-P-96	Jae Hong Kim	Effect of Triphenylamine Dyes Structure On the Performance of Organic Dye Sensitized Solar Cell
DSC-P5-47	DSC-P-97	Jae Hong Kim	Enhancement of Photovoltaic Performance in Dye Sensitized Solar Cell Module With The Spin-Coated TiO_2 Blocking Layer
DSC-P5-48	DSC-P-98	Taiho Park	Hydrophobic energy barrier on charge recombination in Dye-sensitized solar cells.
DSC-P5-49	DSC-P-99	Hee-Joon Kim	Supramolecular Manipulation of Porphyrin-Viologen Dyads with Cucurbit[n]uril (n = 7, 8) for Photovoltaic Application
DSC-P5-50	DSC-P-105	Myeongkyu Lee	Improvement of Conversion Efficiency for Dye-Sensitized Solar Cell with Laser Modification on Interface of TiO_2 / FTO
ASI-P5-1	ASI-P-02	Toshihiko Toyama	Topological characterization of light trapping structures using fractal concepts
ASI-P5-2	ASI-P-03	Hyung Dong Kang	A novel process for ZnO based TCO thin films grown by heat-insulated MOCVD technique for large size thin film solar cells
ASI-P5-3	ASI-P-04	Dae-Yup Na	Amorphous-Silicon BIPV Solar Cells with Direct Metallization
ASI-P5-4	ASI-P-06	Jun-Sik Cho	Structural and optical properties of textured ZnO:Al films on glass substrates prepared by in-line RF magnetron sputtering
ASI-P5-5	ASI-P-07	Jae Hyun Kim	Silicon Wire Radial p-n Junction Solar Cells
ASI-P5-6	ASI-P-09	Taek Sung Lee	Optical modeling of light trapping structure in thin film Si solar cells
ASI-P5-7	ASI-P-10	Kyung Joong Kim	Photovoltaic effects of boron-doped Si nanocrystals fabricated on n-type Si wafer by ion beam sputtering and annealing
ASI-P5-8	ASI-P-11	Paresh Kale	Generation Of Si Quantum Dots From Freestanding Porous Silicon (Ps) Film Using Ultrasonication
ASI-P5-9	ASI-P-12	Jaran Sritharathikhun	Preparation of boron doped zinc oxide films using MOCVD techinque and their applications in thin film silicon solar cells
ASI-P5-10	ASI-P-13	Sun Jin Yun	Electrical Properties and Thermal Stability of Ga-doped ZnO film Deposited by RF-Magnetron Sputter Deposition Technique
ASI-P5-11	ASI-P-14	Youn J. Kim	High deposition rate microcrystalline silicon films prepared by magnetic mirror assisted RF-PECVD
ASI-P5-12	ASI-P-15	Suvitha Ambigapathy	First Principles Calculations on Grain Boundary Impurity in Polycrystalline Silicon
ASI-P5-13	ASI-P-16	teresa oh	Electric Properties of PN Junction using the Precursor of Phosphorus Oxychloride
ASI-P5-14	ASI-P-17	Won Mok Kim	Effect of fluorine and hydrogen co-doping on the Properties of Al-doped ZnO films
ASI-P5-15	ASI-P-18	Junsin Yi	The effect of H_2 plasma treatment at the p/i interface high Efficiency Single-junction Amorphous Silicon Solar cells by Cluster PECVD
ASI-P5-16	ASI-P-19	Jung Wook Lim	Characteristics of p-type amorphous silicon prepared by RF-magnetron sputtering for a-Si thin film solar cells
ASI-P5-17	ASI-P-20	Jin Jang	A novel p-type nc-Si prepared by PECVD from a new gas mixture for window layer of high efficiency thin-film silicon solar cell
ASI-P5-18	ASI-P-21	Won Mok Kim	Effect of deposition temperature and Ga content on the properties of Ga-doped ZnO films
ASI-P5-19	ASI-P-22	Tae-Yeon Seong	Effects of the introduction of Silver Nanodots and Nanoimprint Lithography for Superstrate-structured Thin-film Silicon Photovoltaic Applications
ASI-P5-20	ASI-P-23	Naohiro Yoshida	Microcrystalline Germanium Thin Films Prepared By Reactive RF Sputtering

ASI-P5-21	ASI-P-25	Yun-Seong Lee	Effect of the residence time of gas particles in the process of microcrystalline silicon thin film solar cell
ASI-P5-22	ASI-P-26	Jong-San Im	Fabrication of microcrystalline silicon solar cells on the SnO_2 coated substrate using the seed layer insertion
ASI-P5-23	ASI-P-28	Junsin Yi	Hydrogen dilution ratio effect on optical properties of hydrogenated amorphous-microcrystalline silicon thin films by spectroscopic ellipsometry
ASI-P5-24	ASI-P-29	Hyung-Dong Kang	Development of large size and high efficiency silicon tandem solar cells through lowering light-induced degradation
ASI-P5-25	ASI-P-30	Junsin Yi	Effect of bias stress on stability in hydrogenated amorphous silicon thin film solar cells
ASI-P5-26	ASI-P-31	Jae Hyun Kim	Vertically Aligned Single-Crystalline Si Wire Arrays for Solar Cells
ASI-P5-27	ASI-P-32	Czang-Ho Lee	Material properties of microcrystalline silicon for device applications
ASI-P5-28	ASI-P-33	Geun Young Yeom	Microcrystalline silicon thin films deposited at room temperature for flexible solar cell
ASI-P5-29	ASI-P-37	Young Kwan Kim	Crystallization of a-Si thin layer by selective removal of anodized layer
ASI-P5-30	ASI-P-38	Won Jong Yoo	Effects of Nanostructures Formed by Plasma Etching on Reflectance of Solar Cells
ASI-P5-31	ASI-P-39	Chaehwan Jeong	Investigation on optical and electrical properties of polycyrstalline silicon seed layer prepared by aluminum-induced crystallization (AIC) Process
ASI-P5-32	ASI-P-40	Kyoung Suk Oh	Low Temperature Deposition of Phosphorus-doped Nanocrystalline Hydrogenated Sillicon Films by Hyperthermal Neutral Beam
ASI-P5-33	ASI-P-42	Bum Ho Choi	Surface texturing of high transmittance transparent conducting oxide for amorphous silicon thin film solar cell
ASI-P5-34	ASI-P-43	Tae-Won Kim	Stability against hydrogen plasma for the Zn-In-Sn-O films deposited by combinatorial rf magnetron sputtering
ASI-P5-35	ASI-P-44	Gi-Chung Kwon	ENHANCED CONVERSION EFFICIENCY OF THIN-FILM SILICON SOLAR CELL USING PATTERNING GLASS
ASI-P5-36	ASI-P-45	Yeong-Cheol Kim	Effect of oxygen vacancy on formation and migration of zinc interstitial in ZnO
ASI-P5-37	ASI-P-46	Gi Chung Kwon	MEASUREMENT OF WORK FUNCTION ON BORON DOPED ZINC OXIDE WITH PLASMA TREATMENT
ASI-P5-38	ASI-P-47	Tea-Won Kim	Fabrication of Al-doped ZnO thin films with nano patterned ZnO seed layer
ASI-P5-39	ASI-P-48	Tea-Won Kim	Texturing ZnO-based multi-composition TCO thin films prepared by combinatorial sputtering system
ASI-P5-40	ASI-P-49	Jae-ho Lee	Fabrication of porous silicon layer by anodic etching for solar cell
ASI-P5-41	ASI-P-50	Paresh Kale	Width Modulation of Silicon Nanocolumns In Freestanding Porous Silicon Multilayer Film For Silicon Quantum Dots Production
ASI-P5-42	ASI-P-51	Byung Tae Ahn	Low Temperature Growth of Polycrystalline Silicon films on Aluminum Deposited Substrate by HWCVD
PIM-P5-1	PIM-P-01	Joonsoo kim	Patent Analysis on Metallurgical refining of Metallurgical grade Silicon
PIM-P5-2	PIM-P-03	Yun-Geun Lee	A study on the Success Factors of PV industry through New Analytical Framework
PIM-P5-3	PIM-P-04	Hye Mi Hwang	The economic analysis about the PV assistant program in Korea
PIM-P5-4	PIM-P-05	Jae Hak Jung	Analysis of changing the CO2 exchange for optimized photovoltaic plant

Poster 6: CIG, PMS

Presentation No.	Abstract No.	Corresponding author	Title
P6: 11/12 (Thu) 14:00-17:30			
CIG-P6-1	CIG-P-49	Jin Hyeok Kim	Effects of pH on the characteristics of poly-crystalline ZnS thin film in acidic medium by CBD method
CIG-P6-2	CIG-P-54	Jin Hyeok Kim	Effect of complexing agents on the properties of ZnS thin films on glass substrates in acidic medium by CBD technique
CIG-P6-3	CIG-P-56	Jin Hyeok Kim	Effects of the annealing atmosphere on the characteristics of ZnS thin films prepared using chemical bath deposition
CIG-P6-4	CIG-P-66	Jin Hyeok Kim	Effects of doping elements on the characteristics of ZnO thin films prepared by RF magnetron sputtering system
CIG-P6-5	CIG-P-72	Jae-Young Leem	Characteristics of Two Step Growth of Zinc Oxide Nanostructures on Si (100) Substrate Grown by Hydrothermal Process
CIG-P6-6	CIG-P-73	Jae-Young Leem	Characteristics of ZnO Thin Films on Interrupts Induced ZnO Buffer Layer Grown by Plasma-Assisted Molecular Beam Epitaxy
CIG-P6-7	CIG-P-74	Jae-Young Leem	Effect of Growth Interruption on Structural and Optical Properties of ZnO Epitaxial Layer Grown by Plasma-Assisted Molecular Beam

			Epitaxy
CIG-P6-8	CIG-P-75	Jae-Young Leem	Influence of Solution Concentrations on the Growth of ZnO Nanostructure by Hydrothermal Method
CIG-P6-9	CIG-P-76	Jae-Young Leem	MBE Growth and Characterization of ZnO Epitaxial Layers with Thermal Annealed ZnO Buffer Layers in Oxygen Plasma
CIG-P6-10	CIG-P-77	Ho Seong Lee	Microstructural and optical properties of ZnO nanotubes by electro-deposition method
CIG-P6-11	CIG-P-78	Jae-Young Leem	Influence of ZnO Buffer Layer with Growth Interrupts on Properties of ZnO Epitaxial Layer Grown by PAMBE
CIG-P6-12	CIG-P-79	Jae-Young Leem	Studies on Properties of ZnO Epitaxial Layers with Annealed Initial Zn Layers Grown by Plasma-Assisted Molecular Beam Epitaxy
CIG-P6-13	CIG-P-80	Woo Kyoung Kim	Effect of Na on the reaction kinetics of $CuInSe_2$ formation
CIG-P6-14	CIG-P-81	Jeung-hyun Jeong	Novel method to evaluate interfacial adhesion of molybdenium/sodalime glass in CIGS solar cells
CIG-P6-15	CIG-P-82	Nowshad Amin	Performance Analysis of CIGS Solar Cells with Various Buffer Layers by SCAPS
CIG-P6-16	CIG-P-83	Bae-Heng Tseng	Effects of a thin Al interlayer on the selenization process of $CuInSe_2$
CIG-P6-17	CIG-P-84	Jeung-hyun Jeong	Optical characterization of the microstructure of Mo back contact and its effect on Na diffusion into $Cu(In,Ga)Se_2$ absorber
CIG-P6-18	CIG-P-85	Jae-Ho Lee	Electrochemical characterization of CdSe and CdTe thin films from acidic aqueous solution
CIG-P6-19	CIG-P-86	Kyoo Ho Kim	$Cu_2ZnSnSe_4$ Thin Films prepared by RF Sputtering of Ternary Cu-Zn-Sn Alloy Target and Sequential Selenization
CIG-P6-20	CIG-P-87	Jin Hyeok Kim	Effects of Cu composition ratio on the characteristics of Cu_2ZnSnS_4 thin films formed by sulfurization of $Cu/ZnS/SnS_2$ multi-stacked precursors deposited by sputtering method
CIG-P6-21	CIG-P-88	SangHo Sohn	The effect of substrate temperature on CdTe layer in thin film solar cell
CIG-P6-22	CIG-P-89	Jin Hyeok Kim	Comparison with properties of Cu_2ZnSnS_4(CZTS) thin films prepared by sulfurization of multi-stacked precursors obtained from Sn and SnS_2 target
CIG-P6-23	CIG-P-90	Lei Wang	Preparation of $CuInSe_2$ thin films by use of based on metal inks
CIG-P6-24	CIG-P-91	Jin Hyeok Kim	Investigation on structural, optical and electrical properties of Cu_2ZnSnS_4 thin films formed by sulfurization of Cu-ZnS-Sn mixed precursors prepared by co-sputtering method.
CIG-P6-25	CIG-P-92	Pung Keun Song	Characteristics of Al-, Ga-, or In-doped zinc-oxide films as transparent conducting electrodes in organic light-emitting devices
CIG-P6-26	CIG-P-93	Jea-Hwan Park	Effect of Rapid Thermal Annealing on the Properties of CdS Films Prepared by Chemical Bath Deposition on Gallium-doped Zinc Oxide Substrates
CIG-P6-27	CIG-P-94	Donggun Lim	The effect of In_xSe_y buffer layers in $Cu(In,Ga)Se_2$ thin-film solar cells
CIG-P6-28	CIG-P-95	Gye-Choon Park	A Study on the Properties of $CuInS_2$ thin films by sulfurization.
CIG-P6-29	CIG-P-96	Jae-Hyeong Lee	Thermal stability of aluminum and hydrogen doped ZnO films for thin film solar cell applications
CIG-P6-30	CIG-P-97	Sang-Woo Kim	Ga-doped ZnO Thin Films Prepared Using Aqueous Solution for CIGS Solar Cells
CIG-P6-31	CIG-P-98	Chia-Hua Huang	Dependence of Microstructure of Co-evaporated $Cu(In,Ga)Se_2$ Films on Deposition Conditions of Substrate Temperatures and Se/(In+Ga) ratios
CIG-P6-32	CIG-P-99	Hyung Koun Cho	Electrical and Structural properties of Al-doped ZnO films grown by atomic layer deposition with controlled doping level
CIG-P6-33	CIG-P-102	Yoon Soo Han	Solvothermal synthesis and characterization of a $CuInTe_2$ compound for chalcogenide-type photovoltaics
CIG-P6-34	CIG-P-103	Dong Chan Shin	The manufacturing cost analysis of CIGS thin film solar cells
CIG-P6-35	CIG-P-104	Michael H.-C. Jin	Preparation of $CuInS_2$ Thin-Films by a Non-vacuum, Nanoparticle-based Process for Solar Cells
CIG-P6-36	CIG-P-105	Muhammad Islam	Determination of $Cu(In,Ga)_3Se_5$ defect phase in CIGS material by Rietveld analysis
CIG-P6-37	CIG-P-106	Kyunghoon Yoon	Effects of substrate temperature on properties of $Cu_2ZnSnSe_4$ thin films fabricated by co-evaporation technique
CIG-P6-38	CIG-P-107	K. T. Ramakrishna Reddy	Characterization of Al-doped ZnS layers Synthesized by Chemical Precipitation Method
CIG-P6-39	CIG-P-108	Ramakrishna Reddy K.T.	Physical Properties of ZnS_xSe_{1-x} Films Grown by Close Spaced Evaporation
CIG-P6-40	CIG-P-109	Pung-Keun SONG	Characterization of OLED devices using IZO and IZTO films deposited by DC magnetron sputtering
CIG-P6-41	CIG-P-110	Kyung Hoon Yoon	Fabrication and Characterization of Wide Band-gap $Cu(In_{1-x}Ga_x)Se_2$ Thin Film Solar Cells for Tandem Structure
CIG-P6-42	CIG-P-111	Kenji Yoshino	Ag-III-Se_2 based Solar Cells Grown by Single Source Evaporation Method
CIG-P6-43	CIG-P-112	Kenji Yoshino	Dependence of Cu/In ratio of $CuInTe_2$ Crystals Grown by Hot-press

			Method
CIG-P6-44	CIG-P-113	Seiji Yamazoe	Development of p-type TCO, $SrCu_2O_2$, films for thin film solar cells
CIG-P6-45	CIG-P-114	W. J. Lee	Preparation and characterization of p-type ZnO thin films by pulsed laser deposition
CIG-P6-46	CIG-P-115	Zue-Chin Chang	Characteristics of the Cd-free CIGS solar cell prepared by RF magnetron sputtering with non-selenization process
CIG-P6-47	CIG-P-116	Ingo Riedel	Defect Spectroscopy on CuInS2 Photovoltaic Devices with Varying Ga-Content
CIG-P6-48	CIG-P-117	Ingo Riedel	Voltage Bias Dependent Quantum Efficiency Measurements on CIGS Solar Cells
CIG-P6-49	CIG-P-118	Shinho Cho	Properties of Nitrogen and Aluminium Codoped ZnO Thin Films Grown with Different Nitrogen Flow Ratios
CIG-P6-50	CIG-P-119	Won Mok Kim	An optical simulation algorithm based on ray tracing technique for light absorption in thin film solar cells
CIG-P6-51	CIG-P-120	Liudmila Larina	Band Discontinuities at Zn-Compound/CdS/CIGS Heterojunction
CIG-P6-52	CIG-P-121	Kyung Hwan Kim	Effect of substrate temperature on the properties of ZnO:Al window layer for CIGS thin film solar cells
CIG-P6-53	CIG-P-122	Inyoung Kim	Fabrication and Characterization of Printed Cu_2ZnSnS_4 thin films
CIG-P6-54	CIG-P-123	Chul-Hwan Choi	The Effect of Post Electron Beam Treatments on Electronic and Optical Properties of Al doped ZnO Films
CIG-P6-55	CIG-P-124	Sang-Woo Kim	Enhancement of photo-conversion efficiency in inverted structure hybrid solar cells by and electron blocking layer
CIG-P6-56	CIG-P-125	Takahiro Mise, Tokio Nakada	Improved Open-Circuit-Voltage by Addition of Non-Doped ZnMgO Layers for Cd-Free CIGS Solar Cells
CIG-P6-57	CIG-P-126	Chinwoo Lim	The Sodium Effect of CIGS Thin Film Solar Cells
CIG-P6-58	CIG-P-127	Seung-Yup Lee	Structural and Electrical Properties of CIGS Thin Films: Composition Effect
CIG-P6-59	CIG-P-128	Jae Hak Jung	Inverse Modeling of Cu(InGa)Se2 Solar Cell
CIG-P6-60	CIG-P-129	Chan-Wook Jeon	Initial stage of selenization of CuInGa/Se stacked layer
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