Program Poster

Tuesday, November 14
16:00-18:00 Room7+8+9 **Area1**

1TuPo.1

LONG-TERM DEGRADATION OF FRONT SIDE COPPER METALLIZATION OF SILICON SOLAR CELLS

Wen Jauh Chen[1)], You Ren Cheng[1)], Keisuke Ohdaira[2)], Koichi Higashimine[2)], Xiaobin Zhang[2)]

[1)] Graduate School of Materials Science, National Yunlin University of Science and Technology, [2)] Japan Advanced Institute of Science and Technology (JAIST)

1TuPo.2

INFLUENCE OF NON-BONDED HYDROGENS ON AMORPHOUS SILICON NETWORK IN HYDROGENATED AMORPHOUS SILICON

Takeyuki Sekimoto[1)], Mitsuhiro Matsumoto[2)], Akira Terakawa[2)]

[1)] Advanced Research Division, Panasonic Corporation, [2)] Eco Solutions Company, Panasonic Corporation

1TuPo.3

Control of Microstructure and Crack in Polycrystalline Silicon Ingot using Simulation Method

Jun-Kyu Lee[1)], Jin-Seok Lee[1)], Young-Soo Ahn[1)], Gi-Hwan Kang[2)]

[1)] Separation and Conversion Materials Laboratory, Korea Institute of Energy Research, [2)] Photovoltaic Laboratory, Korea Institute of Energy Research

1TuPo.4

OUTDOOR POWER GENERATION CHARACTERISTICS OF InGaP//Si SPECTRUM SPLITTING SOLAR CELLS

Satomi Takahashi[1)], Makoto Konagai[1)]

[1)] Tokyo City University

1TuPo.5

LEAD-FREE FRONT SIDE SILVER PASTE WITH TELLURITE GLASS FOR CRYSTALLINE SILICON SOLAR CELLS (AL-BSF AND PERC)

Masayuki Kurahashi[1)], Shiho Tsukahara[1)], Kousuke Nishimura[1)], Katsuhiko Shirasawa[2)], Hidetaka Takato[2)]

[1)] Research and Development, Shoei Chemical Inc, [2)] National Institute of Advanced Industrial Science and Technology (AIST)

1TuPo.6

Low Minority Carrier Lifetime at the Bottom of Quasi-single Crystalline Silicon

Peng Ni[1,2)], Lei Wang[1)], Chunlai Huang[1,2)], Da You[2)], Chen Wang[2)], Deren Yang[1)]

[1)] State Key Laboratory of Silicon Materials Science & Eng, Zhejiang University, [2)] Jiangsu Key Lab of Silicon Based Electronic Materials, Jiangsu GCL Silicon Material Technology Development Co., Ltd.,

1TuPo.7

REUSABLE SI3N4 CRUCIBLES MADE FROM KERF-LOSS SILICON FOR MULTI- CRYSTALLINE SILICON GROWTH

Chung-Wen Lan[1)], Y. Z. Liu[1)], C. Y. Lan[1)], C.F. Yang[1)], A. Lan[1,2)], C. Hsu[2)]

[1)] Chemical Engineering, National Taiwan University, [2)] Sino-American Silicon Products Inc.

1TuPo.8 ► 1ThPo.35

1TuPo.9

SI-BASED TANDEM CELL, 2-TERMINAL OR 4-TERMINAL?

Kenji Araki[1)], Yasuyuki Ota[2)], Takumi Sakai[2)], Kyotaro Nakamura[3)], Kan-Hua Lee[1)], Takefumi Kamioka[1)], Kensuke Nisioka[2)], Yoshio Ohshita[1)], Masafumi Yamaguchi[1)]

[1)] Toyota Technological Institute, [2)] University of Miyazaki, [3)] Meiji University

1TuPo.10

PREPARATION AND EVALUATION OF LIQUID-PHASE-CRYSTALLIZED SILICON THIN FILMS ON GLASS FOR PHOTOVOLTAIC APPLICATION

Hiroshi Umishio[1,2)], Takuya Matsui[1)], Hitoshi Sai[1)], Takeaki Sakurai[3)], Koji Matsubara[1)]

[1)] Research Center for Photovoltaics, National Institute of Advanced Industrial Science and Technology, [2)] Graduate School of Pure and Applied Sciences, University of Tsukuba, [3)] Faculty of Pure and Applied Sciences, University of Tsukuba

1TuPo.11

SILICON-HYBRID MULTI-JUNCTION DEVICES FOR PHOTOVOLTAIC AND (PHOTO-) ELECTROCHEMICAL APPICATIONS

Arno H.M. Smets[1,2)], Paula Perez Rodriguez[1)], Johan Blanker[1)], Ravi Vasudevan[1,2)], Hairen Tan[1,3)], Miro Zeman[1)]

[1)] Photovoltaic Materials and Devices Group/Department of Electrical Sustainable Energy, Delft University of Technology, [2)] Institut National de l'Energie Solaire, [3)] Toronto University

1TuPo.12

NANOCRYSTALLINE SILICON LAYER OBTAINED THROUGH MAGNESIOTHERMIC REDUCTION OF SOILD SILICA-SUBSTRATES

Muhammad M. Islam[1)], Takeaki Sakurai[1)], Katsuhiro Akimoto[1)]

[1)] Faculty of Pure and Applied Sciences, Alliance for Research on North Africa (ARENA), University of Tsukuba

1TuPo.13

NEUTRAL-COLOR SEMI-TRANSPARENT CRYSTALLINE SILICON SOLAR CELLS

Kangmin Lee[1)], Namwoo Kim[1)], Han-don Um[1)], Kwanyong Seo[1)]

[1)] Department of Energy Engineering, Ulsan National Institute of Science and Technology (UNIST)

1TuPo.14

Withdrawn

1TuPo.15

REMOVING BARRIERS TOWARD THIN CRYSTALLINE SILICON SOLAR CELLS BY IMPROVED CRACK DETECTION USING DARK-FIELD IMAGING

Sarah Wieghold[1)], Zhe Liu[1)], Luke Meyer[1)], Ashley E. Morishige[1)], Tonio Buonassisi[1)], Emanuel M. Sachs[1)]

[1)] Massachusetts Institute of Technology

1TuPo.16

DEVELOPMENT OF N-PERT SOLAR CELL USING NON MASS SEPARATION TYPE ION IMPLANTATION

Noboru Yamaguchi[1)], Daisuke Hironiwa[1)], Hideo Suzuki[1)], Kazuo Muramatsu[2)], Kyotaro Nakamura[3)]

[1)] Institute of Semiconductor and Electronics Technologies ULVAC, Inc., [2)] NAMICS CORPORATION, [3)] Meiji University

1TuPo.17

SUBMICRON TEXTURING BY WET METHOD FOR MULTICRYSTALLINE WAFERS SLICED BY DIAMOND WIRE SAW

Ying Huang[1)], Joel Li[1)]

[1)] Solar Energy Research Institute of Singapore, National University of Singapore

1TuPo.18

ENHANCEMENT OF LIGHT ABSORPTION IN PHOTOVOLTAIC DEVICES USING TEXTURED PDMS STICKERS

Inchan Hwang[1)], Deokjae Choi[1)], Kwanyong Seo[1)]

[1)] Department of Energy Engineering, Ulsan National Institute of Science and Technology (UNIST)

1TuPo.19

INVESTIVATION OF SURSURFACE DAMAGE CAUSED BY DIAMOND WIRE IN CRYSTALLINE SILICON THIN WAFERS

Halubai Sekhar[1)], Tetsuo Fukuda[1)], Katsuto Tanahashi[1)], Katsuhiko Shirasawa[1)], Hidetaka Takato[1)]

[1)] Photovoltaic Power Team, Fukushima Renewable Energy Institute, National Institute of Advanced Industrial Scanice and Technology (AIST)

1TuPo.20

18.4%-EFFICIENT HETEROJUNCTION SI SOLAR CELLS USING OPTIMIZED ITO/TOP ELECTRODE

Namwoo Kim[1)], Han-Don Um[1)], Inwoo Choi[2)], Ka-Hyun Kim[2)], Kwanyong Seo[1)]

[1)] Department of Energy Engineering, Ulsan National Institute of Science and Technology, [2)] KIER-UNIST, Advanced Center for Energy, Korea Institute for Energy Research

1TuPo.21

MICRO-GRID ELECTRODE FOR SI MICROWIRE SOLAR CELLS WITH A FILL FACTOR OF OVER 80%

Jeonghwan Park[1)], Han-Don Um[1)], Inchan Hwang[1)], Namwoo Kim[1)], Kwanyong Seo[1)]

[1)] Department of Energy Engineering, Ulsan National Institute of Science and Technology (UNIST)

1TuPo.22

GRIDDLER AI ASSISTED P+ LAYER OPTIMIZATION TOWARDS LOWER SCREEN PRINTING INDUCED RECOMBINATION LOSSES FOR INDUSTRIALLY RELEVANT N- TYPE BIFACIAL SI SOLAR CELLS

Mengjie Li[1,2)], Johnson Wong[1)], Ning Chen[1)], Armin Aberle[1,2)], Rolf Stangl[1)]

[1)] Solar Energy Research Institute of Singapore, Singapore, [2)] Department of Electrical and Computer Engineering, National University of Singapore, Singapore

1TuPo.23

THERMAL STABILITY OF IN-SITU ALUMINA/TITANIA STACKS FOR BORON EMITTER PASSIVATION ON N-TYPE SILICON SOLAR CELLS

Dongchul Suh[1)]

[1)] Division of Chemical Engineering, Hoseo University

1TuPo.24

CHANGE IN THE ELECTRICAL CHARACTERISTICS OF A-SI FILMS AND A-SI:H/ITO INTERFACES BY BORON CAT-DOPING

Katsuya Akiyama[1)], Keisuke Ohdaira[1)]

[1)] Japan Advanced Institute of Science and Technology

1TuPo.25

IMPACT OF FIRING TEMPERATURES ON HYDROGEN PASSIVATION OF RING DEFECTS IN CZOCHRALSKI SILICON

Rabin Basnet[1)], F.E. Rougieux[1)], Daniel Macdonald[1)]

[1)] Research School of Engineering, The Australian National University

1TuPo.26

AN EFFICIENCY OVER 20% N-TYPE BIFACIAL SOLAR CELL WITH FRONT BORON EMITTER FORMED BY BBr3THERMAL DIFFUSION

Shalamujiang Simayi[1)], Yasuhiro Kida[1)], Satoshi Utsunomiya[1)], Katsuhiko Shirasawa[1)], Hidetaka Takato[1)]

[1)] Fukushima Renewable Research Center, National Institute of Advanced Industrial Science and Technology

1TuPo.27

IMPROVEMENT IN THE MINORITY CARRIER LIFETIME OF CAT-CVD SINX/C-SI STRUCTURES UNDER ROOM TEMPERATURE

Junichiro Miyaura[1)], Keisuke Ohdaira[1)]

[1)] Japan Advanced Institute of Science and Technology

1TuPo.28

LARGE DIAMETE-RATIO CZOCHRALSKI SILICON CRYSTAL GROWTH TECHNIQUE USING "LIQUINERT" SILICA CRUCIBLES

Tetsuo Fukuda[1)], Yukichi Horioka[2)], Kozo Fujiwara[3)], Katsuto Tanahashi[1)], Katsuhiko Shirasawa[1)], Hidetaka Takato[1)]

[1)] Renewable Energy Research Center, National Institute of Advanced Industrial Science and Technology, [2)] Frontier Technology Business Research Institute Co. LTD., [3)] Institute for Materials Reseach, Tohoku University

1TuPo.29

THE EFFECT OF THE SILICON CONTENT OF ALUMINUM PASTE ON EFFICIENCY OF PERC SOLAR CELLS

Naoya Morishita[1)], Shota Suzuki[1)], Kosuke Tsuji[1)], Masahiro Nakahara[1)], Marwan Dhamrin[1)]

[1)] Toyo Aluminium K.K.

1TuPo.30

DEVELOPMENT OF P-DOPED AMORPHOUS SILICON THIN FILMS BY INDUCTIVELY COUPLED PLASMA ENHANCED CHEMICAL VAPOUR DEPOSITION

Boon Heng Teo[1,2)], Jin Liu[1)], Jia Ge[1)], Delio Perez[1)], Edwin Carmona[1)], Maryknol Delos Santos[1)], Thomas Mueller[1)]

[1)] Solar Energy Research Institute of Singapore, [2)] NUS Graduate School for Integrative Sciences and Engineering, National University of Singapore

1TuPo.31

THE SILVER CONTACT AND FORMATION MECHANISM OF THE BORON EMITTER AND THE CURRENT FLOW MECHANISM OF THE SOLAR CELL ELECTRODE

Seunghyun Shin[1)], Soohyun Bae[1)], Sungeun Park[1)], Dongjin Choi[1)], Yoonmook Kang[1)], Hae-Seok Lee[1)], Donghwan Kim[1)]

[1)] Korea University

1TuPo.32

EVALUATION OF CARRIER COLLETION PROBABILITY IN BACK CONTACTED SILICON SOLAR CELL WITH INTERNAL QUANTUM EFFICIENCY MAPPING

Tomihisa Tachibana[1)], Katsuto Tanahashi[1)], Toshimitsu Mochizuki[1)], Katsuhiko Shirasawa[1)], Hidetaka Takato[1)]

[1)] Renewable Energy Research Center, National Institute of Advanced Industrial Science and Technology

1TuPo.33

FRONT ELECTRODE FORMATION USING ELECTROLESS LIGHT INDUCED PLATING IN THE C-SI SOLAR CELLS WITH VARIOUS ANTI-REFLECTION COATING

MYEONG SANG JEONG[1,2)], Sungjin Choi[1,2)], Min Gu Kang[2)], Jeong In Lee[2)], Donghwan Kim[1)], Hee-eun Song[2)]

[1)] Korea University, [2)] Korea Institute of Energy Research

1TuPo.34

REDUCTION OF LIGHT INDUCED DEGRADATION IN MULTICRYSTALLINE SILICON PERC SOLAR CELLS THROUGH PHOSPHORUS GETTERING

Sagnik Chakraborty[1,2)], Ying Huang[2)], Mrinalini Padmanabhan[2)], Armin Gerhard Aberle[1,2,3)], Joel Bingrui Li[2)]

[1)] NUS Graduate School for Integrative Sciences and Engineering, National University of Singapore, [2)] Solar Energy Research Institute of Singapore, National University of Singapore, [3)] Dept. of ECE, National University of Singapore

1TuPo.35

CHEMICALY RESITTIVE AND HIGH QUALITY TRASPARENT SILICON NITRIDE PASSIVATION LAYERS FOR BACK-CONTACT CRYSTALLINE SILICON SOLAR CELLS

Huynh Thi Cam Tu[1)], Koichi Koyama[1)], Cong Thanh Nguyen[1)], Shigeki Terashima[1)], Takeo Konishi[1)], Keisukei Ohdaira[1)], Hideiki Matsumura[1)]

[1)] Japan Advanced Institute of Science and Technology

1TuPo.36

HIGH EFFICIENCY TANDEM SOLAR CELL WITH CARRIER SELECTIVE CONTACT

Sk Md Iftiquar[1)], Shihyun Ahn[1)], Jaehyun Cho[2)], Junhee Jung[2)],

Jinjoo Park[1)], Sangho Kim[2)], Junsin Yi[1)]

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1TuPo.37

FULLY ION IMPLANTED INTERDIGITATED BACK CONTACT SILICON SOLAR CELL

Katsuto Tanahashi[1)], Masaaki Moriya[1)], Tomihisa Tachibana[1)], Yasuhiro Kida[1)], Satoshi Utsunomiya[1)], Tetsuo Fukuda[1)], Katsuhiko Shirasawa[1)], Hidetaka Takato[1)]

[1)] Renewable Energy Research Center, National Institute of Advanced Industrial Science and Technology (AIST)

1TuPo.38

INVESTIGATION OF DEGREADATION MECHANISMS ORGINATING NEAR OHMIC ELECTRODES

Jonathon Mitchell[1)]

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1TuPo.39

ELECTRODEPOSITION OF SI THIN FILMS IN IONIC LIQUID WITH GROWTH CONTROL FROM INITIAL STAGES

Hidenori Takai[1)], Yasuhiro Tsuyuki[1)], Tatsuki Fujimura[1)], Masahiro Kunimoto[2)], Yasuhiro Fukunaka[2)], Piero Pianetta[3)], Takayuki Homma[1,2)]

[1)] Department of Applied Chemistry, Waseda University, [2)] Research Organization for Nano & Life Innovation, Waseda University, [3)] SLAC National Accelerator Laboratory

1TuPo.40

HIGHLY EFFICIENT RADIAL-JUNCTION MICROWIRE SOLAR CELLS BY ACID BASED DOPING PROCESS

Wonjoo Jin[1)], Inchan Hwang[1)], Kwanyong Seo[1)]

[1)] Energy Engineering, Ulsan National Institute of Science and Technology

1TuPo.41

PASSIVATION PROPERTIES OF AL2O3/SIOX/SI(100) BY USING WET CHMICAL OXIDATION FOR CRYSTALLINE SI SOLAR CELL APPLICATION

Kwan Hong Min[1,2)], Sungjin Choi[1,2)], Myeong Sang Jeong[1,2)], Min Gu Kang[2)], Jeong In Lee[2)], Donghwan Kim[1)], Hee-eun Song[2)]

[1)] Korea University, [2)] Korea Institute Energy Research

1TuPo.42

Passivation of crystalline Si surfaces with small textures by Cat-CVD SiNx films

Jing Liu[1)], Seimei Akagi[2)], Yuzo Yamamoto[2)], Keisuke Ohdaira[1)]

[1)] Japan Advanced Institute of Science and Technology, [2)] Settsu Oil Mill

1TuPo.43

Kerfless wafering of crystalline silicon by proton implantation exfoliation and its application for solar cells

Hyeon-Seung Lee[1)], Jaekwon Suk[1)], Joonkon Kim[1)], Jonghan Song[1)], Doo Seok Jeong[1)], Jong-Keuk Park[1)], Won Mok Kim[1)], Taek Sung Lee[1)], Inho Kim[1)]

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1TuPo.44

OPTOELECTRICAL PROPERTIES OF PULSED DC MAGNETRON SPUTTER DEPOSITED CERIUM-DOPED INDIUM OXIDE THIN FILMS FOR PV APPLICATIONS

Krishanu Dey[1)], Xia Yan[1)], Stella Van Eek[3)], Sascha Kreher[3)], Armin Gerhard Aberle[1,2)], Selvaraj Venkataraj[1)]

[1)] Solar Energy Research Institute of Singapore, National University of Singapore, Singapore, [2)] Department of Electrical and Computer Engineering, National University of Singapore, Singapore, [3)] FHR Anlagenbau GmbH, Germany

1TuPo.45

FABRICATION OF COPPER IODIDE BY 2-STEP METHOD AS HOLE SELECTIVE CONTACT FOR CRYSTALLINE SILICON SOLAR CELL -A POTENTIAL ALTERNATIVE TO AMORPHOUS SILICON HETEROJUNCTION-

Min Cui[1)], Kazuhiro Gotoh[1)], Isao Takahashi[1)], Yasuyoshi Kurokawa[1)], Noritaka Usami[1)]

[1)] Graduate School of Engineering, Nagoya University

1TuPo.46

INFLUENCE OF PSEUDO FIRING PROCESS ON ELECTRICAL PROPERTY OF SINX/SI STRUCTURE

Hidenobu Mori[1)], Yuki Horikawa[1)], Iruro Matsumoto[1)], Koji Arafune[1)], Shin-ich Satoh[1)], Haruhiko Yoshida[1)]

[1)] Department of Electrical Materials and Engineering, University of Hyogo

1TuPo.47

IMPROVING SILICON-NANOPARTICLE DENSITY USING THE PRESS METHOD FOR APPLICATION TO THE DOPING LAYER OF SILICON SOLAR CELLS

Shinya Kato[1)], Eiji Ichihara[1)], Naoki Kishi[1)], Tetsuo Soga[1)]

[1)] Depertment of electrical and Mechanical Engineering, Nagoya Institute of technology

1TuPo.48

STUDY ON CHEMICAL BONDING STATES AT ELECTRODE-SILICON INTERFACE FABRICATED WITH FIRE-THROUGH CONTROL PASTE

T. Hiyama[1)], T. Kojima[1)], K. Kinoshita[1)], T. Nishihara[1)], K. Onishi[1)], K. Muramastu[2)], A. Tanaka[2)], Y. Ohshita[3)], A. Ogura[1)]

[1)] Meiji University, [2)] NAMICS Corporation, [3)] Toyota Tech. Inst.

1TuPo.49

THIN WAFER AND LOW KERF-LOSS DIAMOND MULTI-WIRE SAW

Tomoyuki Kawatsu[1)], Yoshio Ohshita[2)], Kyotaro Nakamura[3)], Atsushi Ogura[3)]

[1)] Komatsu NTC Ltd., [2)] Toyota Technological Institute, [3)] Meiji University

1TuPo.50

PASSIVATION PROPERTIES OF AlOx FILMS DEPOSITED BY LOW-INDUCTANCE- ANTENNA ASSISTED REACTIVE SPUTTERING

Yuki Miki[1)], Toshiya Marukane[1)], Takashi Harada[1)], Yasushi Hotta[1)], Haruhiko Yoshida[1)], Kouji Maeda[1)], Koji Arafune[1)]

[1)] Department of Chemical Engineering, University of Hyogo

1TuPo.51

IMPACT OF BORON INCORPORATION ON PROPERTY OF SI SOLAR CELLS EMPLOYING P-TYPE POLY-SI BY ALUMINUM INDUCED CRYSTALIZATION

Shota Masuda[1)], Kazuhiro Gotoh[1)], Isao Takahashi[1)], Kyotaro Nakumura[2)], Yoshio Ohshita[3)], Noritaka Usami[1)]

[1)] Graduate School of Engineering, Nagoya University, [2)] Meiji University, [3)] Toyota Technological Institute

1TuPo.52

ENHANCED CRYSTALLINE SILICON SURFACE PASSIVATION BY LIQUID BASED METAL OXIDE CAPPING

Fen LIN[1)], Xinhang LI[1,2)], Zhi Ming KAM[1)], Mei Gi TOH[1)], Armin G. ABERLE[1,2)], Thomas GASCOU[1)]

[1)] Solar Energy Research Institute of Singapore, National University of Singapore, [2)] Department of Electrical and Computer Engineering, National University of Singapore

1TuPo.53

PLATING METALLIZATION PROCESS FOR SILICON HETERO JUNCTION SOLAR CELL

Yui Tomomatsu[1)], Masahiro Fujiwara[1)], Shoya Iuchi[1)]

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1TuPo.54

FABRICATION AND ANALYSIS OF THE KERF-LESS ULTRA-THIN SI WAFER USING A CONTROLLED CRACK PROPGATION METHOD

Jihun Oh[1)], Yong Hwan Lee[1)]

[1)] Graduate School of EEWS (Energy, Environment, Water and Substantiality), KAIST

1TuPo.55

PERC DESIGN CONSIDERATION OF LASER ABLATION PATTERN FOR HIGHER EFFICIENCY CRYSTALLINE SILICON SOLAR CELLS

Donny Lai[1)], Chuan Seng Tan[1)], Maria Luz Loria Manalo[1)], Pun Chong Ang[1)], Joel Li Bingrui[1)]

[1)] Silicon Materials and Cell Cluster, Solar Energy Research Institute of Singapore, National University of Singapore

1TuPo.56

SILICON DOPING PERFORMED BY PECVD METHOD FOR SOLAR CELL APPLICATIONS

Junhee Jung[1)], Changsoon Han[2)], Sungjae Bong[2)], Junsin Yi[1)]

[1)] Department of Energy Science, Sungkyunkwan University, [2)] Laser advanced system industrialization center

1TuPo.57

NUMERICAL SIMULATION OF THE EFFECT OF HEATER CONFIGURATION ON THE GROWTH OF POLYCRYSTALLINE SILICON INGOT BY HEAT EXCHANGER METHOD

Sanghoon Lee[1)], Woo Kyoung Kim[1)], Chinho Park[1)]

[1)] Yeungnam University

1TuPo.58

CHARACTERIZATION OF OXYGEN-RELATED DEFECTS IN SILICON USING CORRELATIVE MICROSCOPY

Withdrawn

Amanda Youssef[1)], Erin E. Looney[1)], Mindy A. Jensen[1)], Sarah Wieghold[1)], Jeremy P. Dexter[1)], Barry Lai[2)], Tonio Buonassisi[1)]

[1)] Department of Mechanical Engineering, Massachusetts Institute of Technology, [2)] Advanced Photon Source, Argonne National Laboratory

1TuPo.59

HIGHLY TRANSPARENCY AND HIGH MOBILITY BILAYER ALUMINUM DOPED ZINC OXIDE FILMS ON PERIODIC TEXTURED GLASS MORPHOLOGY FOR THIN FILM SILICON SOLAR CELLS

Hyeongsik Park[1,3)], Anh Huy Tuan Le[1)], Youn-Jung Lee[1)], Junhee Jung[2)], Duy Phong Pham[1)], Jaehyun Cho[1)], Junsin Yi[1)]

[1] College of Information and Communication Engineering, Sungkyunkwan University, [2] Department of Energy Science, Sungkyunkwan University, [3] KETI, Electronic Convergence Materials and Device Research Center

1TuPo.60

Single Side doped a-Si (poly-Si) and TCO PECVD for Passivated Contact Technology

Thomas Grosse[1], Hans-Peter Sperlich[1], Daniel Decker[1], Marcel König[1]

[1] Process Development, Meyer Burger (Germany) AG

1TuPo.61

EFFECT OF REAR PASSIVATION AND LOCAL BACK CONTACT FOR HIGH EFFICIENCY c-Si SOLAR CELL

Jeong Eun Park[1], Minji Lee[2], Sangmuk Kang[2], Hye Kwon Hong[2], Young Ho Cho[2], Donggun Lim*[1,2]

[1] Department of Electronic Engineering, Korea National University of Transportation, [2] Department of IT Convergence, Korea National University of Transportation

1TuPo.62

OPTIMIZATION OF REACTIVE ION ETCHING FOR BLACK SILICON

Minji Lee[1], Jeong Eun Park[2], Sangmuk Kang[1], Hye Kwon Hong[1], Young Ho Cho[1], Donggun Lim*[1,2]

[1] Department of IT Convergence, Korea National University of Transportation, [2] Department of Electronic Engineering, Korea National University of Transportation

1TuPo.63

A NOVEL OPTIMIZATION METHOD FOR BORON SPIN-ON DOPANT DIFFUSED EMITTER OF N-TYPE CRYSTALLINE SILICON SOLAR CELL BASED ON SILICON OXIDE NANOSPHERES

Qingzhu Wei[1,2], Shuanglong Yu[2], Shude Zhang[1], Honglie Shen[2], Zhichun Ni[1,2]

[1] Suzhou Talesun Solar Technologies Co., Ltd., [2] Nanjing University of Aeronautics and Astronautics

1TuPo.64

High-efficiency (>17%) Si-PEDOT:PSS hybrid solar cells by concurrent structural, electrical, and interfacial engineering via low temperature processes

Dahl-Young Khang[1]

[1] Department of Materials Science and Engineering, Yonsei University

1TuPo.65

OPTIMIZATION OF Ni / Cu PLATING PROCESS FOR GHOST PLATING-FREE SOLAR CELL

Hye Kwon Hong[1], Jeong Eun Park[2], Minji Lee[1], Sangmuk Kang[1], Young Ho Cho[1], Donggun Lim*[1,2]

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1TuPo.66

EFFECT OF PICOSECOND LASER PROCESS FOR CUTTING CELL

Young Ho Cho[1], Jeong Eun Park[2], Minji Lee[1], Sangmuk Kang[1], Hye Kwon Hong[1], Donggun Lim*[1,2]

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1TuPo.67

PICOSECOND LASER-ASSISTED SPALLING PROCESS FOR ULTRA-THIN WAFER

Kang Sangmuk[1], Park Jeong Eun[2], Yang Hyun Seock[3], Lim Jae Hong[3], Lim Donggun[1,2]

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1TuPo.68

INFLUENCE OF ITO-RPD PROCESS ON EFFECTIVE MINORITY CARRIER LIFETIME IN REACTIVE PLASMA DEPOSITED ITO/ SIO2/SI STRUCTURE

Yuki Isogai[1], Takefumi Kamioka[1], Hyunju Lee[1], Nobuaki Kojima[1], Yoshio Ohshita[1]

[1] Toyota Technological Institution

Tuesday, November 14
16:00-18:00 Room7+8+9 **Area2**

2TuPo.69

CHARACTERIZATION OF FLEXIBLE CIGS THIN FILM SOLAR CELLS ON STAINLESS STEEL SUBSTRATE

Chae-Woong Kim[1)], Jihye Kim[1)], Hyung Sang Park[1)], Jin Hyeok Kim[2)], Chaehwan Jeong[3)]

[1)] R&D Center ISAC Research Inc., [2)] Chonnam University, [3)] KITECH

2TuPo.70

PROPERTIES AND CHARACTERIZATION OF TIN SULFIDE THIN FILMS GROWN BY ATOMIC LAYER DEPOSITION

Jihye Kim[1)], Chae Woong Kim[1)], Hyung Sang Park[1)], Young Duck Tak[1)]

[1)] Research & Development team, ISAC Research Inc.

2TuPo.71 ► 2WeO3.3

2TuPo.72

FABRICATION OF SUBSTRATE-TYPE CDTE THIN-FILM SOLAR CELLS BY CLOSE-SPACED SUBLIMATION

Tamotsu Okamoto[1)], Ayuki Murata[1)], Yusuke Hayashi[1)], Yasuyoshi Shiina[1)], Ryousuke Ishikawa[2)], Nozomu Tsuboi[2)]

[1)] Department of Electrical and Electronic Engineering, National Institute of Technology, Kisarazu College, [2)] Niigata University

2TuPo.73 ► 2WeO4.3

2TuPo.74

INVESTIGATION OF Cu2ZnSnS4 (CZTS) AND Cu2SnS3 (CTS) CELLS WITH HIGH PHOTOVOLTAIC PROPERTIES

Shin Tajima[1)], Mitsutaro Umehara[1)], Yasuhiko Takeda[1)], Kazuo Higuchi[1)], Tatsuo Fukano[1)], Ryoji Asahi[1)], Hirofumi Hazama[1)], Keita Kataoka[1)], Masaki Hasegawa[1)], Tomoyoshi Motohiro[1)]

[1)] Materials and Process Research Program, Toyota Central R&D Labs., Inc.

2TuPo.75

INVESTIGATON ON BORON-DOPED P-BASI2/N-SI HETERO-JUNCTION SOLAR CELLS ON A TEXTURED SI(001) SUBSTRATE

Tianguo Deng[1)], Kazuhiro Gotoh[2)], Ryota Takabe[1)], Zhihao Xu[1)], Suguru Yachi[1)], Yudai Yamashita[1)], Kaoru Toko[1)], Noritaka Usami[2)], Takashi Suemasu[1)]

[1)] Institute of Applied Physics, University of Tsukuba, [2)] Nagoya University

2TuPo.76

Fabrication of (Cu,Ag)2SnS3 thin film solar cells by sulfurization from stacked NaF/Sn/(Cu+Ag) precursors

Mitsuki Nakashima[1)], Koichi Hatayama[1)], Toshiyuki Yamaguchi[1)], Hideaki Araki[2)], Shigeyuki Nakamura[3)], Satoru Seto[4)], Yoji Akaki[5)], Junji Sasano[6)], Masanobu Izaki[6)]

[1)] National Institute of Technology, Wakayama College, [2)] National Institute of Technology, Nagaoka College, [3)] National Institute of Technology, Tsuyama College, [4)] National Institute of Technology, Ishikawa College, [5)] National Institute of Technology, Miyakonojo College, [6)] Toyohashi University of Technology

2TuPo.77

Effect of KF addition to Cu2SnS3 thin film by two-stage annealing

Mitsuki Nakashima[1)], Junya Ue[1)], Toshiyuki Yamaguchi[1)], Junji Sasano[2)], Masanobu Izaki[2)]

[1)] National Institute of Technology, Wakayama College, [2)] Toyohashi University of Technology

2TuPo.78

NITROGEN-DOPED BASI2 THIN FILM ON N-SI (111) BY MOLECULAR BEAM EPITAXY AND RADIO-FREQUENCY PLASMA GENERATOR

Zhihao Xu[1)], Tianguo Deng[1)], Ryota Takabe[1)], Kaoru Toko[1)], Takashi Suemasu[1)]

[1)] Institute of Applied Physics Graduate School of Pure and Applied Scicences, University of Tsukuba

2TuPo.79

RECOMBINATION ANALYSIS OF CU2SNS3 SOLAR CELLS WITH DIFFERENT NAF THICKNESS

Kanta Tai[1)], Jakapan Chantana[1)], Takashi Minemoto[1)]

[1)] Department of Science and Engineering, Ritsumeikan University

2TuPo.80

INFLUENCE OF ANNEALING IN SULFUR FLUX ON CZTS FORMATION BY USING MOLECULAR BEAM EPITAXY SYSTEM

Yosuke Shimamune[1)], Kazuo Jimbo[1)], Genki Nishida[1)], Masanari Murayama[1)], Akiko Takeuchi[1)], Hironori Katagiri[1)]

[1)] Dapartment of Electrical and Electronic System Engineering, National Institute of Technology, Nagaoka College

2TuPo.81

OPEN CIRCUIT VOLTAGE IMPROVEMENT OF SPRAY-PYROLYZED CU2ZNSN4 THIN FILM SOLAR CELLS BY SILVER DOPING

Thi Hiep Nguyen[1)], Takashi Harada[1)], Jakapan Chantana[2)],

Takashi Minemoto[2)], Shuji Nakanishi[1)], Shigeru Ikeda[3)]

[1)] Research Center for Solar Energy Chemistry, Osaka University, [2)] Ritsumeikan University, [3)] Konan University

2TuPo.82

FEASIBILITY STUDY OF WIDE-GAP CHALCOPYRITE TOP CELLS FOR HIGH EFFICIENCY TANDEM PHOTOVOLTAICS

Soichiro Shibasaki[1)], Sara Yoshio[1)], Naoyuki Nakagawa[1)], Yuya Honishi[2)], Kazushige Yamamoto[1)]

[1)] Research & Development Center, Toshiba Corp., [2)] Toshiba Corp.

2TuPo.83

IMPACT OF BA/SI FLUX RATIO DURING MOLECULAR BEAM EPITAXY GROWTH ON THE CHARACTERISTICS OF BASI2 EPITAXIAL FILMS ON SI(111)

Ryota Takabe[1)], Tianguo Deng[1)], Komomo Kodama[1)], Yudai Yamashita[1)], Kaoru Toko[1)], Takashi Suemasu[1)]

[1)] Institute of Applied Physics, University of Tsukuba

2TuPo.84

IMPACT OF ANNEALING TEMPERATURE PROFILE ON THE FORMATION OF CZTSSe ABSORBER LAYER

UDAI P. SINGH[1)], Srinibasa Padhy[1)], Vishvas Kumar[1)], S. Bhattacharya[2)]

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2TuPo.85

STUDY OF STRUCTURAL AND ELECTRICAL PROPERTIES OF Cu2SnS3 AND Cu2SnSe3 THIN FILM DEPOSITED FROM SOLID SOLUTION

UDAI P. SINGH[1)], Arindam Basak[1,2)], Himanghshu Deka[1)], Anup Mondal[2,3)]

[1)] School of electronics engineering, KIIT UNIVERSITY, [2)] Centre of Excellence for Green Energy&Sensor Systems, IIEST, [3)] Department of Chemistry, IIEST

2TuPo.86

TEMPERATURE-DEPENDENT ABSORPTION SPECTRA OF CU2SNS3 THIN FILMS

Naoya Aihara[1)], Hideaki Araki[2)], Kunihiko Tanaka[1)]

[1)] Department of Electrical, Electronics and Information Engineering, Nagaoka University of Technology, [2)] National Institute of Technology, Nagaoka Collge

2TuPo.87

CHARACTERIZATION OF CDSNP2/ZNSNP2 P-N JUNCTION

Shigeru Nakatsuka[1)], Yoshitaro Nose[1)]

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2TuPo.88

EFFICIENCY IMPROVEMENT OF ZNSNP2 WAFER-BASED SOLAR CELL BY (CD,ZN)S BUFFER LAYER

Syunsuke Akari[1)], Jakapan Chantana[1)], Shigeru Nakatsuka[2)], Yoshitaro Nose[2)], Takashi Minemoto[1)]

[1)] Department of Electrical and Electronic Engineering, Ritsumeikan University, [2)] Kyoto University

2TuPo.89

DEVICE MODELING OF IRON PYERITE SOLAR CELL FOR HIGH CONVERSION EFFICINECY

Shunsuke Uchiyama[1)], Yasuaki Ishikawa[1)], Yukiharu Uraoka[1)]

[1)] Graduate School of Materials Science, Nara Institute of Science and Technology

2TuPo.90

EARTH-ABUNDANT AND NON-TOXIC CuSbS2 THIN FILMS FOR PHOTOVOLTAICS – EFFECT OF Cu/Sb RATIO

Chalapathi Uppala[1)], Poornaprakash Bathalavaram[1)], Si-Hyun Park[1)]

[1)] Department of Electronic Engineering, Yeungnam University

2TuPo.91

SIMULATION BASED OPTIMIZATION OF CZTS SOLAR CELL EFFICIENCY

Atul Kumar[1)], Ajay D. Thakur[1)]

[1)] Department of Physics, Indian Institute of Technology Patna

2TuPo.92

INVESTIGATION INTO HEAT TREATMENT CONDITION OF CZTS THIN FILM

Tatsuya Araki[1)], Takahiro Maeda[1)], Kazuo Jimbo[1)], Yosuke Shimamune[1)], Hironori Katagiri[1)]

[1)] Department of Electrical and Electronic Systems Engineering, National Institute of Technology, Nagaoka College

2TuPo.93

FABRICATION OF CZTS THIN FILMS BY USING STACKED PRECURSORS

Takahiro Maeda[1)], Tatsuya Araki[1)], Kazuo Jimbo[1)], Yosuke Shimamune[1)], Hironori Katagiri[1)]

[1)] Department of Electrical and Electronic Systems Engineering, National Institute of Technology, Nagaoka College

2TuPo.94

RELATION OF BANDGAP GRADING WITH CARRIER RECOMBINATION IN Cu(In,Ga)Se2 BASED SOLAR CELLS

Yuta Ando[1)], Shogo Ishizuka[2)], Shenghao Wang[1)], Jingdong Chen[1)], Muhammad Monirul Islam[1)], Hajime Shibata[2)], Katsuhiro Akimoto[1)], Takeaki Sakurai[1)]

[1)] University of Tsukuba, [2)] National Institute of Advanced Industrial Science and Technology

2TuPo.95

DIAGNOSIS OF EXTERNALLY INDUCED SPATIALLY-RESOLVED STRAIN IN GAAS THIN-FILM SOLAR CELLS BY ELECTROLUMINESCENCE IMAGING METHOD

Xiaobo Hu[1)], Liangqing Zhu[1)], Guoen Weng[1)], Shaoqiqng Chen[1)]

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2TuPo.96

DEFECT PROPERTIES OF GROUP-V ELEMENTS DOPED CADMIUM TELLURIDE SINGLE CRYSTALS

Akira Nagaoka[1,3)], Kenji Yoshino[2)], Yoshitaro Nose[1)], Michael A. Scarpulla[3)]

[1)] Department of Materials Science and Engineering, Kyoto University, [2)] University of Miyazaki, [3)] University of Utah

2TuPo.97

Enhancement in Voc and Jsc of narrow-gap a-SiGe:H solar cells by amorphous silicon oxide buffer layer

Duy Phong Pham[1)], Sangho Kim[2)], Jinjoo Park[1)], Jaehyun Cho[2)], Junhee Jung[2)], Anh Huy Tuan Le[1)], Junsin Yi[1)]

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2TuPo.98

GROWTH AND CHARACTERIZATION OF CDS NANOSTRUCTURES AND BI NANOPARTICLES

Patricia Gutierrez Zayas-Bazán[1)], Karla Gutierrrez Zayas-Bazán[1)], Osvaldo de Melo [2)], Miguel Tufiño-Velázquez[1)], Gerardo S. Contreras-Puente[1)]

[1)] Escuela Superior de Física y Matemáticas, Instituto Politécnico Nacional, Unidad Profesional "ALM", [2)] Facultad de Física, Universidad de La Habana

2TuPo.99

ULTRA-THIN SOLAR CELLS OF CDS/CDTE AS PROCESSED BY THE MAGNETO- PLANAR-SPUTTERING (MPS) TECHNIQUE.

Karla Gutierrez Z-B[1)], Francisco de Moure Flores[2)], Patricia Gutierrez Zayas-Bazán[1)], Daniel Jiménez-Olarte[1)], Jorge Sastré-Hernández[1)], Jorge R. Aguilar-Hernández[1)], Concepcin Mejía-García[1)], Gerardo Contreras-Puente[1)]

[1)] Escuela Superior de Física y Matemáticas, Instituto Politécnico Nacional, [2)] Facultad de Química-Materiales, Universidad Autónoma de Querétaro,

2TuPo.100

CHARACTERIZATION OF ELECTRONIC STRUCTURE OF GRAIN BOUNDARIES IN CIGSSe AND CIGSSe ABSORBERS BY KELVIN PROBE FORCE MICROSCOPY

Shingo Kubo[1)], Tsuyoshi Sawada[1)], Takuya Shimamura[1)], Takuya Kato[2)], Hironori Sugimoto[2)], Shogo Ishizuka[3)], Hajime Shibata[3)], Koji Matsubara[3)], Shigeru Niki[3)], Norio Terada[1)]

[1)] Kagoshima University, [2)] Solar Frontier K.K., [3)] AIST

2TuPo.101

STRUCTURAL AND ELECTRIC PROPERTIES OF CUSBS2 COMPOUND BULK CRYSTAL

Takato Kawaguchi[1,3)], Naoki Ilyama[1)], Yuriko Koda[2)], Takashi Harada[2)], Shuji Nakanishi[2)], Shigeru Nakatsuka[3)], Yoshitaro Nose[3)], Shigeru Ikeda[1)]

[1)] Department of Materials Chemistry, Konan University, [2)] Osaka University, [3)] Kyoto University

2TuPo.102

PRECISE COMPOSITION CONTROL OF CZTS THIN FILMS BY STACKED COPPER-TIN TOP LAYER

Kazuo Jimbo[1)], Yosuke Shimamune[1)], Yuko Satou[1)], Hironori Katagiri[1)]

[1)] Department of Electrical and Electronic Systems Engineering, National Institute of Technology, Nagaoka College

2TuPo.103

FORMATION OF SINGLE-PHASE TIN SULFIDE ABSORBER LAYER FOR THIN FILM SOLAR CELL

Dajeong Lee[1)], Jaeyeong Heo[1)]

[1)] Department of Materials Science and Engineering, and Optoelectronics Convergence Research Center, Chonnam National University

2TuPo.104

FABRICATION OF FeOOH/FeS2 HETERO JUNCTIONS BY ELECTROCHEMICAL DEPOSITION AND SULFUR ANNEALING

Sayaka Maki[1)], Masaya Ichimura[1)]

[1)] Nagoya Institute of technology

2TuPo.105

DEPENDENCE OF SOLAR CELL CHARACTERISTICS ON SI SUBSTRATE PRETREATMENT

Yudai Yamashita[1)], Ryota Takabe[1)], Kaoru Toko[1)], Takashi Suemasu[1)]

[1)] University of Tsukuba

2TuPo.106

INFLUENCE OF DIFFERENT SURFACE CLEANING METHODS ON CIGS SOLAR CELLS PREPARED BY TWO-STAGE PROCESS

Xue Zheng[1,3)], Xuan Sang Nguyen[2)], Xia Yan[1)],
Armin Gerhard Aberle[1,3)], Selvaraj Venkataraj[1)]

[1)] Solar Energy Research Institute of Singapore, National University of Singapore, [2)] Singapore MIT Alliance for Research and Technology, [3)] Department of Electrical&Computer Engineering, National University of Singapore

2TuPo.107

FABRICATION OF TIN MONOSULFIDE FILMS BY REACTION DIFFUSION

Koki Iwata[1)], Ryoji Katsube[1)], Shigeru Nakatsuka[1)], Yoshitaro Nose[1)]

[1)] Kyoto University

2TuPo.108

EFFECT OF SURFACE TREATMENT ON THE CZTS THIN FILMS USING A SODIUM HYPOCHLORITE

Hisashi Miyazaki[1)], Daichi Yamasaki[1)], Masami Aono[1)],
Hiroaki Kishimura[1)], Kazuo Jimbo[2)], Hironori Katagiri[2)]

[1)] National Defense Academy, [2)] National Institute of Technology, Nagaoka College

2TuPo.109

CRYSTALLOGRAPHIC, OPTICAL AND ELECTRONIC PROPERTIES OF (Cu, Li)In(S,Se)2 SYSTEM

Takahiro Kusumoto[1)], Tsuyoshi Maeda[1)], Takahiro Wada[1)]

[1)] Department of Materials Chemistry, Ryukoku University

2TuPo.110

SUPPRESSION OF SECONDARY PHASE WITH CZTS BY TIN INCORPORATION USING MOLECULAR BEAM EPITAXY SYSTEM

Genki Nishida[1)], Masanari Murayama[1)], Akiko Takeuchi[1)],
Yosuke Shimamune[1)], Kazuo Jimbo[1)], Hironori Katagiri[1)]

[1)] Electrical and Mechanical Systems Engineering Advanced Course, National Institute of Technology, Nagaoka college

2TuPo.111

ELECTRODEPOSITED CUPROUS OXIDE ON VARIOUS SUBSTRATES FOR SOLAR CELL APPLICATIONS

MAN HIEU TRAN[1)], Jae Yu Cho[1)], Jaeyeong Heo[1)]

[1)] Department of Materials Science and Engineering, and Optoelectronics Convergence Research Center, Chonnam Natioanl University

2TuPo.112

Effect of RF power on the properties of Al-doped ZnO (AZO) thin films and their application to Cu2ZnSn(S, Se)4 thin film solar cells

Jun Sung Jang[1)], Jin Hyeok Kim[1)]

[1)] Department of Materials Science and Engineering, Chonnam National University

2TuPo.113

CdTe SOLAR CELLS REDUCED IN CADMIUM

MARIA DE LOURDES ALBOR AGUILERA[1,2)],
UZIEL GALARZA GUTIERREZ[1)],
CESAR HERNANDEZ VASQUEZ[1)],
JOSE MANUEL FLORES MARQUEZ[3)],
JUANA ANGELICA ORTEGA CARDENAS[1)],
MIGUEL ANGEL GONZALEZ TRUJILLO[2)]

[1)] FISICA INSTITUTO POLITECNICO NACIONAL, [2)] INSTITUTO POLITECNICO NACIONAL-ESFM, [3)] INSTITUTO POLITECNICO NACIONAL-ESIQIE

2TuPo.114

Surface effects of CIGS thin films between one-step sputtering and co-evaporation process on cell efficiency characterized by scanning probe microscopy

Jae-Cheol Park[1)], Mowafak Al-Jassim[2)], Tae-Won Kim[1)]

[1)] Applied optics and energy research group, Korea Institute of Industrial Technology, [2)] National Renewable Energy Laboratory

2TuPo.115

Low-temperature growth of Cu(In,Ga)Se2 thin films using a CuIn liquid flux in co-evaporation process

Seung Tae Kim[1)], Sun Hong Moon[1)], Huiling Cui[1)], Byung Tae Ahn[1)]

[1)] Department of Materials Science and Engineering, Korea Advanced Institute of Science and Technology

2TuPo.116

THE PROPERTIES OF ZnS THIN FILM WITH DIFFERENT COMPLEXING AGENT FOR CIGS SOLAR CELL

Sang Yong Park[1)], Jeong Eun Park[2)], Taewoo Eom[1)],
Jung Hoon Park[1)], Jackson Bweupe[1)], Donggun Lim*[1,2)]

[1] Department of IT Convergence, Korea National University of Transportation, [2] Department of Electronic Engineering, Korea National University of Transportation

Tuesday, November 14
16:00-18:00 Room7+8+9 **Area3**

3TuPo.117

PYPVCELL – OPEN-SOURCED SOLAR CELL MODELING TOOLKIT IN PYTHON LANGUAGE

Kan-Hua Lee[1], Kenji Araki[1], Nobuaki Kojima[1], Masafumi Yamaguchi[1]

[1] Toyota Technological Institute

3TuPo.118

GROWTH OF InGaAs(P) IN PALANETARY MOVPE REACTOR USING TBA AND TBP FOR PHOTOVOLTAIC APPLICATIONS

Hassanet Sodabanlu[1], Kentaroh Watanabe[1], Masakazu Sugiyama[1], Yoshiaki Nakano[2]

[1] Research Center for Advanced Science and Technology, The University of Tokyo, [2] The University of Tokyo

3TuPo.119

EFFECT OF (IN)GAASN BUFFER LAYER ON DISLOCATION DENSITY FOR LATTICE-MISMATCHED HETERO-EPITAXIAL (IN)GAAS FILM

Omar Elleuch[1], Yu-Cian Wang[1], Nobuaki Kojima[1], Yoshio Ohshita[1], Masafumi Yamaguchi[1]

[1] Toyota Technological Institute

3TuPo.120

GALLIUN ASERNIDE ON SILICON WITH A LOW-TEMPERATRE BUFFER LAYER GROWN BY MIGRATION-ENHANCED EPITAXY

Yu-Cian Wang[1], Omar Elleuch[1], Akio Yamamoto[2], Nobuaki Kojima[1], Yoshio Ohshita[1], Masafumi Yamaguchi[1]

[1] Toyota Technological Institute, [2] University of Fukui

3TuPo.121

INFLUENCE OF LASER ANNEALING ON CRYSTAL QUALITY OF GaAs THIN FILMS GROWN ON SI (001) SUBSTRATE

Kenji Kaino[1], Hiroki Yoshidome[1], Koji Maeda[1], Tetsuo Ikari[1], Atsuhiko Fukuyama[1], Hidetoshi Suzuki[1]

[1] Miyazaki University

3TuPo.122

THE EFFECTS OF Ga PRE-EVAPORATION ON THE CRYSTAL QUALITY OF GaAs THIN FILM GROWN ON Si (113) BY MOLECULAR BEAM EPITAXY

Tetsu Okuya[1], Masaya Yuki[1], Tetsuo Ikari[1], Atsuhiko Fukuyama[1], Hidetoshi Suzuki[1]

[1] Miyazaki University

3TuPo.123

INVESTIGATION OF EPITAXIAL GROWTH OF GALLIUM ARSENIDE THIN FILMS BY MAGNETRON SPUTTERING DEPOSITION

Sheng-Hui Chen[1], Chia-Yin Chen[1], Chiu-Yi Shin[1], Chu-Jian Lin[1], Shao-Ze Tseng[1], Chao-Yang Tsao[1,2]

[1] Department of Optics and Photonics, National Central University, [2] Taiwan Power Company

3TuPo.124

CURRENT-MATCHED DESIGN OF GAAS//SI DUAL JUNCTION SOLAR CELLS INTEGRATED BY SURFACE ACTIVATED WAFER BONDING

Kentaroh Watanabe[1], Hassanet Sodabanlu[1], Yoshiaki Nakano[1,2], Masakazu Sugiyama[1,2], Kasidit Toprasertpong[2]

[1] Research Center for Advanced Science and Techonology, University of Tokyo, [2] School of Engineering, University of Tokyo

3TuPo.125

DERIVING EXTERNAL QUANTUM EFFICIENCY OF SOLAR CELLS FROM PHOTLUMINESCENCE MEASUREMENT

Akio Ogura[1], Tetsuya Nakamura[1], Mitsuru Imaizumi[1], Shin-ichiro Sato[2], Takeshi Ohshima[2]

[1] Japan Aerospace Exploration Agency, [2] National Institutes for Quantum and Radiological Science and Technology

3TuPo.126

EFFECT OF LIGHT IRRADIATION ON CARRIER MOBILITY OF N- AND P-TYPE SILICON SUBSTRATES FOR SOLAR CELL APPLICATION

Naoki Matsuda[1], Shuya Tategami[1], Kenjiro Takauchi[1], Tetsuo Ikari[1], Kensuke Nishioka[1], Atsuhiko Fukuyama[1]

[1] University of Miyazaki

3TuPo.127

CONTROL OF BACKGROUND CARRIER CONCENTRATION IN H-MBE GROWN GaInNAs THIN FILMS FOR 4-JUNCTION SOLAR CELLS

Yilun He[1], Naoya Miyashita[2], Yoshitaka Okada[1,2]

[1] School of Engineering, The University of Tokyo, [2] Research Center for Advanced Science and Technology (RCAST), The University of Tokyo

3TuPo.128

SINGLE DOMAIN GROWTH OF LAYERED In2Se3 ON Si(111) AS AN INTERMEDIATE BUFFER LAYER IN GaAs ON Si

Nobuaki Kojima[1)], Li Wang[1)], Yoshio Ohshita[1)], Masafumi Yamaguchi[1)]

[1)] Toyota Technological Institute

3TuPo.129

SURFACE REACTION PROCESS OF GE THIN FILM ON Si AND GaAs SUBSTRATE BY PULSED-JET EPITAXY APPARATUS

Masahiro Kawano[1)], Toshihiro Yamauchi[1)], Masato Ishikawa[2)], Hiroshi Sudo[2)], Hideaki Machida[2)], Yoshio Ohshita[3)], Hidetoshi Suzuki[1)]

[1)] University of Miyazaki, [2)] Gas-Phase Growth LTD., [3)] Toyota Technological Institute

3TuPo.130

MOVPE PREPARATION OF GaP TEMPLATE ON Si(100) WITH IN-SITU REFLECTANCE ANISOTROPY MONITORING: IMPACT OF REACTOR CONTAMINATION

Boram Kim[1)], Oliver Supplie[2)], Agnieszuka Pasazuk[2)], Thomas Hannappel[2)], Yoshiaki Nakano[1)], Masakazu Sugiyama[1)]

[1)] The University of Tokyo, [2)] Ilmenau University of Technology

3TuPo.131

INFLUENCE OF S/Se QUANTITY ON Cu2ZnSn(S, Se)4 THIN FILM SOLAR CELLS SYNTHESIZED VIA PRESSURED RAPID THERMAL ANNEALING PROCESS

HyeongHo Shin[1)], JinHyeok Kim[1)]

[1)] Optoelectronics Convergence Research Center, Department of Materials Science and Engineering, Chonnam national University

3TuPo.132

ENHANCED OPEN-CIRCUIT VOLTAGE IN INGAP SOLAR CELLS GROWN BY SOLID SOURCE MOLECULAR BEAM EPITAXY

Yuki Nagato[1,2)], Ryuji Oshima[2)], Takeyoshi Sugaya[2)], Yoshinobu Okano[1)]

[1)] Department of Informaiton Engineering, Tokyo City University, [2)] National Institute of Advanced Industrial Science and Technology

3TuPo.133

GAAS SINGLE JUNCTION CELLS ON SI SUBSTRATES FABRICATED BY SURFACE ACTIVATED BONDING AND ETCHING OF SACRIFICIAL LAYERS

Sanji Yoon[1)], Jianbo Liang[1)], Naoteru Shigekawa[1)]

[1)] Osaka City University

3TuPo.134

EFFECTS OF GE BUFFER LAYER PREPARED BY PULSE-JET EPITAXY ON CRYSTAL QUALITY OF GAAS FILM GROWN ON SI (001) SUBSTRATE

Hidetoshi Suzuki[1)], Toshihiro Yamauchi[1)], Omar Elleuch[2)], Yu-Cian Wang[2)], Nobuaki Kojima[2)], Yoshio Ohshita[2)], Masafumi Yamaguchi[2)]

[1)] University of Miyazaki, [2)] Toyota Technological Institute

Tuesday, November 14
16:00-18:00 Room7+8+9 Area4

4TuPo.135

PERFORMANCE RATING AND I-V MEASUREMENT (RTOS METHOD) OF EMERGING PV COMPARE BETWEEN INDOOR LIGHTING AND SOLAR SIMULATOR

Yean-San Long[1)], En-Yun Wang[1)], Teng-Chun Wu[1)], Hung-Sen Wu[1)], Chin Lien [1)]

[1)] Energy & Envir. Metrogy Div. Center for Measurement Standards, Industrial Technology Research Institute

4TuPo.136

INVERTED POLYMER SOLAR CELLS WITH METAL-DOPED ZINC OXIDE AS AN ELECTRON EXTRACTION LAYER

Jun Young Kim[1)], Changhee Lee[2)]

[1)] Precision Manufacturing and Control Group, Korea Institute of Industrial Technology, [2)] Seoul National University

4TuPo.137

THE CHARGE STATE OF TITANIUM IN TITANIUM DIOXIDE: Ti4+ IS NOT A TENABLE CONCEPT

Sergei Manzhos[1)], Daniel Koch[1)]

[1)] Department of Mechanical Engineering, National University of Singapore

4TuPo.138

SUPPRESSION OF DETRIMENTAL REACTION OF P-TYPE CUI WITH ADDITIVE ORGANIC SALTS IN SOLID-STATE DYE-SENSITIZED SOLAR CELLS

Masahito Shiozawa[1)], Naohiko Kato[1)], Shinya Moribe[1)], Kazuo Higuchi[1)], Akira Suzuki[2)], Katsuya Tsuchimoto[2)], Yuki Tabata[3)], Katsuyoshi Mizumoto[3)], Shouichi Doi[3)], Tatsuo Toyoda[3)], Ryo Suzuki[1)], Mareedu Sreenivasu[2)]

[1)] Energy Conversion Materials Lab., Toyota Central Research and Development Laboratories, [2)] AISIN Cosmos R&D Co., Ltd., [3)] AISIN SEIKI Co., Ltd.

4TuPo.139

EMERGING SOLAR CELLS ON-SITE TESTS IN MALTA

Brian Azzopardi[1,2], John Chirchop[1], Renata Mikalauskiene[1], Francesca Brunetti[3]

[1] MCAST Energy Research Group, Institute of Engineering and Transport, Malta College of Arts, Science and Technology (MCAST), [2] Brian Azzopardi & Associates, Malta, [3] University of Rome Tor Vergata

4TuPo.140

ELECTROSTATIC DEPOSITION OF TITANIUM DIOXIDE MESOSCOPIC LAYERS FOR HIGH-EFFICIENCY DYE-SENSITIZED SOLAR CELLS

Sergey S. Kozlov[1], Anna B. Nikolskaia[1], Marina F. Vildanova[1], Olga V. Alexeeva[1], Liudmila L. Larina[1,2]

[1] Institute of Biochemical Physics, Russian Academy of Sciences, [2] Department of Material Science and Engineering, Korea Advanced Institute of Science and Technology

4TuPo.141

INDOOR ZERO ENERGY PLANT FACTORY BY USING DSSC POWER

Der Ray Huang[1,2,3], Chen Ming Hsu[1,2], Wei Hsiang Chiang[1,2]

[1] Green Energy & Photonics Center, National Chiao Tung University, [2] College of Photonics, National Chiao Tung University, [3] Research Center for Applied Science, Academia Sinica

4TuPo.142

PROPERTIES OF DSSCS AT VERY LOW INTENSITY CONDITION

Der Ray Huang[1,2], Wei Hsiang Chiang[1,2], Yi An Chen[2], Chih Hung Tsai[3]

[1] Green Energy & Photonics Center, National Chiao Tung University, [2] Energy Technology Center, National Dong Hwa University, [3] Department of Opto-Electronics Engineering, National Dong Hwa University

4TuPo.143

INNOVATIVE SIMULATORS FOR VERY LOW LIGHT INTENSITY CONDITIONS

Der Ray Huang[1,2,3], Wei Hsiang Chiang[1,2]

[1] Green Energy & Photonics Center, National Chiao Tung University, [2] Energy Technology Center, National Dong Hwa University, [3] Research Center for Applied Science, Academia Sinica

4TuPo.144

ROLE OF TEMPERATURE AND GROWTH PERIOD IN SYNTHESIS OF HYDROTHERMALLY GROWN TIO2 NANORODS

Soosaimanickam Ananthakumar[1,2], Pelin Yilmaz[2], Xuan Li[2], Joe Briscoe[2], Ann Louise Anderson[2], Steve Dunn[2], Sridharan Moorthy Babu[1]

[1] Crystal Growth Centre, Anna University, [2] Queen Mary University of London

4TuPo.145

PHOTOVOLTAIC CHARACTERISTICS OF THE DYE-SENSITIZED SOLAR CELLS WITH DOPED ZNO PHOTOELECTRODES

Wei-Te Li[1], You-Sheng Wu[1], Ping-Yu Li[1], Horng-Show Koo[1], Mi Chen[2]

[1] Department of Electronic Engineering, Minghsin University of Sci. & Tech., [2] Dpt. of Chemical & Material Eng., Minghsin University of Sci. & Tech.

4TuPo.146

UNSYMMETRICAL SQUARAINE DYES INCORPORATING BENZODITHIOPHENEπ- SPACER WITH ALKYL CHAINS TO EXTEND CONJUGATION, CONTROL THE DYE ASSEMBLY ON TIO2 AND RETARD CHARGE RECOMBINATION

Rajesh Bisht[1,2], Munavvar Fairoos M. K.[1], Ambarish Kumar Singh[1,2], Jayaraj Nithyanandhan[1,2]

[1] Physical and Materials Chemistry, CSIR-National Chemical Laboratory, CSIR-Network of Institute for Solar Energy, [2] Academy of Scientific and Innovative Research (AcSIR)

4TuPo.147

DEGRADATION CHARACTERISTICS OF THE MGO-ZNO-BASED DYE-SENSIZTIED SOLAR CELLS

Yung-Lin Hsu[1], Bo-Yao Huang[1], Ping-Yu Li[1], Mi Chen[1], Horng-Show Koo[1]

[1] Minghsin University of Science and Technology

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INFLUENCE OF IN2O3-ZNO WORKING ELETRODES ON PHOTOELECTRONIC PROPERTIES OF THE DYE-SENSITIZED SOLAR CELLS

You-Sheng Wu[1], Wei-Te Li[1], Ping-Yu Li[1], Mi Chen[1], Horng-Show Koo[1]

[1] Minghsin University of Science and Technology

4TuPo.149

EFFECT OF CACO3-DOPED ZNO ON DEGRADATION CHARACTERIZATION OF THE DYE-SENSITIZED SOLAR CELLS

Bo-Yao Huang[1], Yung-Lin Hsu[1], Ping-Yu Li[1], Mi Chen[1], Horng-Show Koo[1]

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4TuPo.150

BIMOLECULAR RECOMBINATION AND FILL FACTOR IN CRYSTALLINE POLYMER SOLAR CELLS

Tomohiro Fukuhara[1)], Yasunari Tamai[1)], Itaru Osaka[2)], Hideo Ohkita[1)]

[1)] Department of Polymer Chemistry, Kyoto University, [2)] Hiroshima University

4TuPo.151

ORGANIC SOLAR CELLS WITH INTERFACIAL LAYER FORMED BY SPONTANEOUS PHASE SEPARATION

Tetsuo Soga[1)], Seiya Kato[1)], Shinya Kato[1)], Naoki Kishi[1)]

[1)] Nagoya Institute of Technology

Tuesday, November 14
16:00-18:00 Room7+8+9 Area5

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ROLE OF POLAR SOLVENT IN THE SYNTHESIS OF PEROVSKITE CH(NH2)2PbIxBr3-x THIN FILMS BY TWO-STEP METHOD FOR THIN-FILM SOLAR CELLS

Hajime Shirai[1)], Ryo Ishikawa[1)], Takuya Miura[1)], Kotaro Takahashi[1)]

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5TuPo.153

VARIATION OF OPTICAL ABSORPTION WITH CENTER CATION IN HYBRID PEROVSKITE SOLAR CELLS

Masato Kato[1)], Takemasa Fujiseki[1)], Tetsuhiko Miyadera[2)], Takeshi Sugita[2)], Shohei Fujimoto[1)], Masato Tamakoshi[1)], Masayuki Chikamatsu[2)], Hiroyuki Fujiwara[1)]

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5TuPo.154

HIGHLY EFFICIENT PLANAR PEROVSKITE SOLAR CELLS VIA MIXED SOLVENT ENGINEERING

You-Hyun Seo[1)], Mi-Jeong Choi[1)], Se-Phin Cho[1)], Seok-Soon Kim[2)], Sung-Nam Kwon[1)], Seok-In Na[1)]

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NICKEL OXIDE AS HOLE TRANSPORT LAYER IN LEAD IODIDE PEROVSKITE SOLAR CELLS

Masatoshi Yanagida[1)], Md Bodiul Islam[2)], Namrata Pant[2)], Yasuhiro Shirai[1)], Kenjiro Miyano[1)]

[1)] Global Reserch Center for Environment and Energy based on Nanomaterials Science (GREEN), National Institute for Materials Science (NIMS), [2)] Yamanashi University

5TuPo.156

THE RATIONALE OF HIGH EFFICIENCY OF PbI64--BASED PEROVSKITE SOLAR CELLS

Shozo Yanagida[1)], Susumu Yanagisawa[2)], Masatoshi Yanagida[3)], Hiroshi Segawa[4)]

[1)] Osaka University, [2)] University of the Ryukyus, [3)] National Institute for Materials Science, Japan, [4)] The University of Tokyo

5TuPo.157

ELECTRONIC STRUCTURES AND MAGNETIC PROPERTIES OF TRANSITION METAL DOPED PEROVSKITE COMPOUNDS FOR SOLAR CELL APPLICATIONS

Atsushi Suzuki[1)], Takeo Oku[1)]

[1)] Department of Materials Science, The University of Shiga Prefecture

5TuPo.158

EFFECTS OF C60, C70 PACKING AND THERMAL VIBRATIONS ON OPTICAL PROPERTIES AND BAND ALIGNMENT IN PLANAR PEROVSKITE SOLAR CELLS

Sergei Manzhos[1)], Saeid Arabnejad[2)], Amrita Pal[1)], Koichi Yamashita[2)]

[1)] Department of Mechanical Engineering, National University of Singapore, [2)] University of Tokyo

5TuPo.159

FABRICATION AND CHARACTERIZATION OF PEROVSKITE SOLAR CELLS DOPED WITH METAL ELEMENTS

Atsushi Suzuki[1)], Takeo Oku[1)], Masaya Taguchi[1)], Masataka Kato[1)], Hiroki Okumura[1)]

[1)] Department of Materials Science, The University of Shiga Prefecture

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CRYSTAL STRUCTURE ANALYSIS OF PEROVSKITE CH3NH3PBI3 SOLAR CELLS BASED ON RIETVELD REFINEMENT

Yuji Ando[1)], Takeo Oku[1)]

[1)] Department of Materials Science, The University of Shiga Prefecture

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A STUDY ON OPTICAL ABSORPTION SPECTRA OF PEROVSKITE THIN FILMS FOR DEFECT ESTIMATION BY PHOTOTHERMAL BENDING SPECTROSCOPY

Yuta Hirota[1)], Hiroki kato[2)], Kouta Kawahara[3)], Norimitsu Yosihda[3,4)], Shuichi Nonomura[3,4)]

[1)] Department of Energy Engineering, Graduate School of Natural Science and Technology, Gifu University, [2)] Environmental and Renewable Energy Systems Division,Graduate School of Engineering, Gifu University, [3)] Deparment of Electrial, Erectronic and Computer

Engineering, Faculty of Engineering, Gifu University, [4] Next Ganeration Energy Reserch Center, Gifu University

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UNRAVELING THE ROLE OF THE DROPPING TIME OF THE WASHING SOLVENT FOR THE FORMATION OF PEROVSKITE THIN FILMS AND THEIR APPLICATION IN PHOTOVOLTAICS

Sheng-De Wong[1], Wei-Chen Huang[1], Sheng-Hui Chen[1], Sheng Hsiung Chang[1]

[1] National Central University

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DEVELOPMENT OF PEROVSKITE SOLAR CELLS WITH GRAPHENE LAYER AS HOLE TRANSPORT LAYER

Sho Watanabe[1], Ryousuke Ishikawa[1], Takahiro Nomoto[1], Nozomu Tsuboi[1]

[1] Materials Science Program, Niigata University

5TuPo.165

Strategies for high quality perovskite film realization in two-step fabrication process

Yi Ding[1,2,3,4], Lin Fan[1,2,3,4], Xin Yao[1,2,3,4], Biao Shi[1,2,3,4], Shijie Zhu[1,2,3,4], Cuicui Zheng[1,2,3,4], Ying Zhao[1,2,3,4], Xiaodan Zhang[1,2,3,4]

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STABILITY OF MIXED PEROVSKITE SOLAR CELLS: EFFECT OF OXYGEN, HUMIDITY AND TEMPERATURE AT 1 SUN

Said Kazaoui[1], Takurou N. Murakami[1], Nobuko Onozawa-Komatsuzaki[1], Takashi Funaki[1]

[1] Research Center for Photovoltaics (RCPV), National Institute of Advanced Industrial Science and Technology (AIST)

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EFFECTS OF METAL IONS SUBSTITUTION ON CH3NH3PBI3-BASED PEROVSKITES

Hiroki Tanaka[1], Yuya Ohishi[1], Takeo Oku[1]

[1] Department of Materials Science, The University of Shiga Prefecture

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STRUCTURAL STABILITIES OF PEROVSKITE CRYSTALS FOR SOLAR CELLS

Hiroki Tanaka[1], Naoki Ueoka[1], Takeo Oku[1]

[1] Department of Materials Science, The University of Shiga Prefecture

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IMPACT OF AZAAROMATIC COMPOUNDS TREATMENT ON THE INTERFACE BETWEEN PEROVSKITE AND HOLE TRANSPORT MATERIAL IN PEROVSKITE SOLAR CELLS

Nobuko Onozawa-Komatsuzaki[1], Takurou N. Murakami[1], Takashi Funaki[1], Said Kazaoui[1], Masayuki Chikamatsu[1], Wei-Wei Wang[2,3], Manabu Sugimoto[2,3]

[1] National Institute of Advanced Industrial Science and Technology (AIST), [2] Kumamoto University, [3] The University of Tokyo

5TuPo.170

CESIUM ION DOPED NICKEL OXIDE LAYERS FOR INVERTED PEROVSKITE SOLAR CELLS

Shota Fukumoto[1], Naoyuki Shibayama[1], Hiroyuki Kanda[1], Ajay Kumar Baranwal[1], Yuichi Haruyama[1], Hiroshi Segawa[2], Tsutomu Miyasaka[3], Seigo Ito[1]

[1] University of Hyogo, [2] University of Tokyo, [3] Toin University of Yokohama

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LOW RESISTIVITY AND FLAT SURFACE OF FTO THIN FILM BY SPRAY PYROLYSIS

Kenji Yoshino[1,5], Manato Takeuchi[1], Yuhei Ogomi[2,5], Takashi Minemoto[3,5], Qing Shen[4,5], Taro Toyoda[4,5], Shuzi Hayase[2,5]

[1] University of Miyazaki, [2] Kyushu Institute of Technology, [3] Ritsumeikan University, [4] University of Electro-Communications, [5] JST-CREST

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ELECTRON TRANSPORT OF BAND OFFSET OF BUFFER LAYER FOR PEROVSKITE BASED SOLAR CELL

Kenji Yoshino[1,5], Himeka Tominaga[1], Yuhei Ogomi[2,5], Takashi Minemoto[3,5], Qing Shen[4,5], Taro Toyoda[4,5], Shuzi Hayase[2,5]

[1] University of Miyazaki, [2] Kyushu Institute of Technology, [3] Ritsumeikan University, [4] University of Electro-Communications, [5] JST-CREST

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PLANAR PEROVSKITE SOLAR CELLS PREPARED USING SHEAR COATING PROCESS

Ji-Hye Choe[1], Ji-Ho Song[1], Ji-Young Jeong[1], Choong-Heui Chung[1], Ki-Ha Hong[1]

[1)] Department of Materials Science and Engineering, Hanbat National University

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Enhanced UV Stability and Open Circuit Voltage of Perovskite Solar Cells with SrO Interlayer

Sang-Won Lee[1)], Seongtak Kim[1)], Soohyun Bae[1)], Kyungjin Cho[1)], Taewon Chung[1)], Inseol Song[2)], Sungeun Park[1)], Hae-Seok Lee[2)], Yoonmook Kang[2)], Donghwan Kim[1)], Jae-Keun Hwang[1)], Seunghun Lee[1)], Yoon Jung Lee[1)], Yeon Li Moon[1)]

[1)] Department of Materials Science and Engineering, Korea University, [2)] KUKIST Green School, Graduate School of Energy and Environment, Korea University

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MIXED PEROVSKITE SOLAR CELLS WITH DOUBLED METAL CATIONS

Chie Gau[1)], Yan-Hao Chen[1)], I-Hsiu Gau[2)], Peter Chen[3)]

[1)] Institute of Aeronautics and Astronautics/Research Center for Energy Technology and Strategy, National Cheng Kung University, [2)] Department of Electronic Engineering, National Kaohsiung Normal University, [3)] Department of Photonics, National Cheng Kung University

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MICROWAVE-ASSISTED SYNTHESIS OF SnO2 AS CHARGE EXTRACTION LAYER FOR PEROVSKITE SOLAR CELLS

Chie Gau[1)], Wei Ting Xu[1)], I-Hsiu Gau[2)], Peter Chen[3)]

[1)] Institute of Aeronautics and Astronautics/Research Center for Energy Technology and Strategy, National Cheng Kung University, [2)] Department of Electronics Engineering, National Kaohsiung Normal University, [3)] Department of Photonics, National Cheng Kung University

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PRECUSOR AGING EFFECT ON METHYLAMMONIUM LEAD AND TIN IODIDE FILMS

Sridharan Moorthy Babu[1)], G. Mano Balaji[1)], M. Pandiyarajan[1)], Subashchandran Shanthi[1)]

[1)] Crystal Growth Centre, Anna University

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EFFECT OF FERROELECTRIC POLARIZATION ON BAND CONDUCTION: POSSIBLE ORIGIN OF I-V CURVE HYSTERESIS IN PEROVSKITE SOLAR CELLS

Yasutake Toyoshima[1)]

[1)] Research Institute for Energy Conservation, National Institute of Advanced Industrial Science and Technology

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STUDY ON SPACE APPLICATION OF PEROVSKITE SOLAR CELLS

Olga Malinkiewicz[1)], Mitsuru Imaizumi[2)], Takeshi Ohshima[3)]

[1)] CTO Saule Technologies, Wroclaw, [2)] Japan Aerospace Exploration Agency (JAXA), [3)] National Institutes for Quantum and Radiological Science and Technology (QST)

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LIGHT INCOUPLING ENHANCEMENT IN PEROVSKITE SOLAR CELL USING NANO-STRUCTURED TRANSPARENT CONTACT

Mohammad I. Hossain[1,2)], Wayesh Qarony[1)], Xin-Hua Zhao[1)], F. K. Palash[2)], C. Sarkar[2)], R. Islam[2)], M. Shamsuddin[2)], Yuen Hong Tsang[1)]

[1)]Department of Applied Physics, The Hong Kong Polytechnic University, [2)]Department of EEE, American International University Bangladesh (AIUB)

Tuesday, November 14
16:00-18:00 Room7+8+9 Area6

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Rare earth doped up conversion nanophosphor material for solar cell application

Vinod Kumar[1)], O.M. Ntwaeaborwa[2)], H.C. Swart[3)], Viresh Dutta[1)]

[1)] Centre for Energy Studies, Indian Institute of Technology Delhi, [2)] School of Physics, University of the Witwatersrand, [3)] Department of Physics, University of the Free State

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AB INITIO CALCULATION OF TRANSPORT PROPERTIES BETWEEN PBSE QUANTUM DOTS FACETS WITH HALIDE LIGANDS (CL, BR, I)

Bo Wang[1)], Robert Patterson[1)], Sujuan Huang[1)], Santosh Shrestha[1)], Gavin Conibeer[1)]

[1)]Australian Centre for Advanced Photovoltaics, School of Photovoltaics and Renewable Energy Engineering, University of New South Wales

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SPACER BARRIER EFFECT ON InGaAs QUANTUM DOTS SOLAR CELLS

Tsong-Sheng Lay[1)], Z. H. Lin[1)]

[1)] Department of Electrical Engineering and Graduate Institute of Optoelectronic Engineering, National Chung Hsing University

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SELECTIVELY PROBING SURFACE AND BULK CARRIER DYNAMICS IN SEMICONDUCTORS VIA TWO-PHOTON

PHOTOLUMINESCENCE

Robert Lee Chin[1)], Michael Pollard[1)], Thorsten Trupke[1)], Ziv Hameiri[1)]

[1)] Photovaltaics and Renewable Energy Engineering, University of New South Wales

6TuPo.185

PHOTOELECTRIC CONVERSION IN A LIMITED LENGTH FROM THE END OF OPTCAL FIBER TRANSMITTING OUTPUT OF SOLAR PUMPED LASERS BY RELIEVING OPTICAL CONFINEMENT CONDITION OF OPTICAL FIBER AND SURROUNDING AND ENCLOSING IT WITH PHOTOVOLTAIC LAYERS

Satoshi Takimoto[1)], Kazuo Higuchi[1,2)], Kemmei Watanabe[1)], Hidetaka Terazawa[1)], Kazuo Hasegawa[2)], Tadashi Ichikawa[2)], Hiroshi Ito[1)], Akihisa Ichiki[1)], Yasuhiko Takeda[2)], Tomoyoshi Motohiro[1,2)], Takaya Kato[1)], Yasuhiro Suzuki[1)], Shintaro Mizuno[2)]

[1)] Graduate School of Engineering, Nagoya University, [2)] Toyota Central Research and Development Laboratories, Inc.

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HIVE-SUPER-TYPE SOLAR BOX FOR MONOCHROMATIC PHOTOELECTRIC CONVERSION IN AN INDOOR CONTROLLED AMBIENT CONDITIONS USING A LASER LIGHT TRANSMITTED VIA OPTICAL FIBER FROM SOLAR PUMPED LASERS LOCATED AT A DISTANT PLACE OUTDOORS

Kemmei Watanabe[1)], Satoshi Takimoto[1)], Takaya Kato[1)], Hidetaka Terazawa[1)], Yasuhiro Suzuki[1)], Hiroshi Ito[1)], Akihisa Ichiki[1)], Yasuhiko Takeda[2)], Kazuo Higuchi[1,2)], Tomoyoshi Motohiro[1,2)], Kazyo Hasegawa[2)], Shintaro Mizuno[2)], Tadashi Ichikawa[2)]

[1)] Graduate School of Engineering, Nagoya University, [2)] Toyata Central Research and Development Laboratories, Inc.

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IMPROVEMENT OF MODE-MATCHING EFFICIENCY OF SOLAR PUMPED LASERS FOR MONOCHROMATIC PHOTOELECTRIC CONVERSION

Takaya Kato[1)], Kemmei Watanabe[1)], Hidetaka Terazawa[1)], Akio Ikesue[1)], Kazuo Hasegawa[2)], Shintaro Mizuno[2)], Tadashi Ichikawa[2)], Hiroshi Ito[1)], Yasuhiko Takeda[2)], Tomoyoshi Motohiro[1,2)], Satoshi Takimoto[1)], Yasuhiro Suzuki[1)], Akihisa Ichiki[1)]

[1)] Graduate School of Engineering, Nagoya University, [2)] Toyota Central Research and Development Laboratories, Inc.

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FABRICATION OF TUNABLE BANDGAP FEW-LAYER MOS2 FILMS AND THEIR EMERGING APPLICATION IN TANDEM CELLS

Xiao-Mei Zhang[1,2)], Ming-Yen Lu[4)], Manabu Ihara[2,3)]

[1)] Department of Mechanical Engineering, Tokyo Institute of Technology, [2)] Department of Chemical Science and Engineering,Tokyo Institute of Technology, [3)] Department of Chemistry, Tokyo Institute of Technology, [4)] Department of Materials Science and Engineering, National Tsing Hua University

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LIGHT-TRAPPING FOR CRYSTALLINE SILICON PHOTOVOLTAIC CELLS USED FOR REMOTE POWER SUPPLY FROM SOLAR-PUMPED LASERS

Yasuhiko Takeda[1)], Tadashi Ito[1)], Noboru Yamada[1)], Kazuo Hasegawa[1)], Shintaro Mizuno[1)], Tadashi Ichikawa[1)], Luitel H. Nath[1)], Hideo Iizuka[1)], Kazuo Higuchi[1,2)], Hiroshi Ito[2)], Akihisa Ichiki[2)], Tomoyoshi Motohiro[2)]

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6TuPo.190

TAILORING SURFACE MORPHOLOGY AND THERMAL STABILITY OF HIGHLY CONDUCTIVE SILVER NANOWIRE TRANSPARENT ELECTRODES BY ELECTRODEPOSITION

Choong-Heui Chung[1)], Jiseong Jang[1)], KyungSoo Cho[1)], Ki-Ha Hong[1)]

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DESIGN AND ANALYSIS OF TRANSPARENT SOLAR WINDOW SYSTEM USING FRESNEL LENS AND WAVEGUIDE GLASS

Ganghoo Lee[1)], Myunghun Shin[1)], Seunghyun Yoon[1)], Jeonghoo Jo[1)], Sungryoung Koo[1)]

[1)] Korea Aerospace University

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Fabrication of n-type Epitaxial Germanium Films on Silicon Wafer with Sb/Ge Alloy Target by Sputtering Deposition

Sheng-Hui Chen[1)], Sheng-Wen Chen[1)], Cheng-Wei Luo[1)], Shao-Ze Tseng[1)], Chao-Yang Tsao[1,2)]

[1)] Department of Optics and Photonics, National Central University, [2)] Taiwan Power Company

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GROWTH OF TYPE II GERMANIUM CLATHRATE ON SAPPHIRE SUBSTRATES

Nanto Sugii[1)], Fumitaka Ohashi[1)], Tetsuji Kume[1)], Himanshu Shekhar Jha[1)], Tetsuya Mukai[1)], Hideya Makino[1)], Kansei Suzuki[1)], Shuichi Nonomura[1)]

[1)] Gifu University

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GROWTH AND CHARACTERIZATION OF ZnCdO THIN FILMS BY MOLECULAR BEAM EPITAXY FOR TRANSPARENT CONDUCTIVE OXIDES

Hyo Chang Jang[1)], Syohei Ushio[1)], Shuji Tsutsumi[1)], Tooru Tanaka[1)], Katsuhiko Saito[1)], Qixin Guo[1)], Kin Man Yu[2)], Wladek Walukiewicz[3,4)]

[1)] Saga University, [2)] City University of Hong Kong, [3)] Lawrence Berkeley National Laboratory, [4)] University of California at Berkeley

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STRUCTURAL AND OPTICAL PROPERTIES OF Cu2ZnSnS4:Cr FOR INTERMEDIATE BAND SOLAR CELLS BY CO-SPUTTERING TECHNIQUE

Nowshad Amin[1,2)], Megat M. Izhar Sapeli[1,3)], Seyed A. Shahahmadi[2)], Puvaneswaran Chelvanathan[2)], Md. Akhtaruzzaman[2)]

[1)] Department of Electrical, Electronic and System Engineering, The National University of Malaysia, [2)] Solar Energy Research Institute (SERI), The National University of Malaysia, [3)] Universiti Teknologi MARA

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PHYSICAL CHARACTERIZATION OF THE DYE-SENSIZTIED SOLAR CELLS WITH FE2O3-DOPED ZNO PHOTO-ANODE ELECTRODES

Pin-Yea Chen[1)], Wei-Te Li[1)], Horng-Show Koo[1)]

[1)] Department of Electronic Engineering, Minghsin University of Science and Technology

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INFLUENCE OF GA2O3-DOPED ZNO FILMS ON PHYSICAL CHARACTERIZATION OF THE DYE-SENSITIZED SOLAR CELLS

Cheng-Hsien Tsai[1)], Wei-Te Li[1)], Horng-Show Koo[1)]

[1)] Department of Electronic Engineering, Minghsin University of Science and Technology

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FABRICATION AND CHARACTERIZATION OF CUSBSE2 THIN FILMS BY SELENIZATION OF METAL PRECURSORS

Shunichi Tsuji[1)], Yusuke Kato[1)], Tooru Tanaka[1)], Katsuhiko Saito[1)], Qixin Guo[1)]

[1)] Department of Electrical and Electronic Engineering, Saga University

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EFFECT OF NON-PHOSPHINE SOLVENTS ON THE STRUCTURE and MORPHOLOGY OF THE Cu2SnSe3 (CTSe) NANOPARTICLES SYNTHESIZED BY HOT-INJECTION METHOD

Sridharan Moorthy Babu[1)], Soosaimanickam Ananthakumar[1)]

[1)] Crystal Growth Centre, Anna University

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CRYSTALLINE SILICON PHOTOVOLTAIC CELLS USED FOR POWER TRANSMISSION FROM SOLAR-PUMPED LASERS: PRACTICAL IMPLEMENTATIONS

Yasuhiko Takeda[1)], Noboru Yamada[1)], Tadashi Ito[1)], Hiroshi Ito[2)], Tomoyoshi Motohiro[2)]

[1)] Toyota Central Research and Development Laboratories, Inc., [2)] Nagoya University

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CONTINUOUS OSCILLATION OF A SOLAR-PUMPED LASER FROM 10:50AM TO 17:33PM

Yasuhiro Suzuki[1)], Hiroshi Itoh[1)], Takaya Kato[4)], Luu Thi An Phuc[2)], Kemmei Watanabe[4)], Hidetaka Terazawa[4)], Kazuo Hasegawa[3)], Akio Ikesue[1)], Yasuhiko Takeda[3)], Tomoyoshi Motohiro[1,3,4)], Tadashi Ichikawa[3)], Shintaro Mizuno[3)], Akihisa Ichiki[1)], Satoshi Takimoto[4)]

[1)] Green Mobility Research Institute, Institutes of Innovation for Future Society, Nagoya University, [2)] Hanoi University of Science and Technology, [3)] Toyota Central R&D Labs.,Inc., [4)] Graduate School of Engineering, Nagoya University

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PROPORTION OF OPTCIAL TRANSITION ON CARRIER EXTRACITON FROM GaSb QUANTUM NANOSTRUCTURES

Yasushi Shoji[1)], Ryo Tamaki[1)], Yoshitaka Okada[1)]

[1)] Research Center for Advanced Science and Technology, The University of Tokyo

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FABRICATION OF (Mn,Fe)Siγ~1.7 THIN FILMS FOR NEAR-INFRARED ABSORPTION SOLAR CELLS

Kei Hayashi[1)], Kentaro Ishii[1)], Chihiro Kawasaki[2)], Ryosuke Honda[2)], Yuzuru Miyazaki[1)]

[1)] Department of Applied Physics, Graduate School of Engineering Tohoku University, [2)] School of Engineering, Tohoku University

Tuesday, November 14
16:00-18:00 Room7+8+9 Area7

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ESTABLISHMENT OF AN EMPIRICAL COEFFICIENT REPRESENTS THE IMPACT OF DUST ON SHORT CIRCUIT CURRENT FOR A MONO-CRYSTALLINE PV PANEL UNDER SPARSE ENVIRONMENTAL CONDITIONS

Abubaker A. Younis[1)], Yosif M. AlHorr[1)], Esam O. Elsarrag[1)], Mahmoud M. Onsa[2)]

[1] Gulf Organization for Research and Development, [2] University of Khartoum

7TuPo.205

PHOTOVOLTAIC SOILING AND MITIGATION BY ELECTRODYNAMIC DUST SHIELD

Bing Guo[1], Wasim Javed[1], Benjamin Figgis[2,3,4], Yiming Wubulikasimu[1]

[1] Texas A&M, University at Qatar, [2] Qatar Environment and Energy Research Institute, [4] Université de Strasbourg - CNRS

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RELIABILITY INVESTIGATION OF FIVE PV TECHNOLOGIES UNDER ACTUAL OPERATING CONDITIONS FOR SIX YEARS

Tetsuyuki Ishii[1], Sungwoo Choi[2], Ritsuko Sato[2], Yasuo Chiba[2], Atsushi Masuda[2]

[1] Materials Science Research Laboratory, Central Research Institute of Electric Power Industry, [2] National Institute of Advanced Industrial Science and Technology

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PRECISE SHORT CIRCUIT CURRENT CORRECTION OF THIN-FILM PHOTOVOLTAIC MODULES USING SPECTRAL INDEX

Yuhei Horio[1], Yurie Imai[1], Masaki Tsuji[1], Md. Mijanur Rahman[1], Yoshihiro Hishikawa[2], Takashi Minemoto[1]

[1] Department of Advanced Electrical, Electronic and Computer Systems, Ritsumeikan University, [2] National Institute of Advanced Industrial Science and Technology

7TuPo.208

ACCURATE VOLTAGE MEASUREMENT OF SOLAR CELLS IN MODULE STRUCTURE USING A NON-CONTACTING ELECTROSTATIC VOLTMETER

Sakutaro Miyajima[1], Yasuyuki Ota[1], Yoshihiro Hishikawa[2], Kensuke Nishioka[1]

[1] Department of Applied Physics and Electronic Engineering, Miyazaki University, [2] National Institute of Advanced Industrial Science Technology (AIST)

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PERFORMANCE ANALYSIS OF FIELD EXPOSED MULTI-CRYSTALLINE MODULES OVER 30 YEARS

Kai Zhang[1,2], Wei hong Huang[1], Huili Han[2], Huan Yan[2], Hui Shen[2], Xian Dong[1]

[1] Shun De SYSU Institute for Solar Energy, [2] Sun Yat-Sen University

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ANALYSIS OF TEMPORAL CHANGE IN OUTDOOR PHOTOVOLTAIC PERFORMANCE USING THE CORRECTED SHORT CIRCUIT CURRENT

Yurie Imai[1], Yuhei Horio[1], Masaki Tsuji[1], Rahman Md. Mijanur[1], Yoshihiro Hishikawa[2], Takashi Minemoto[1]

[1] Ritsumeikan University, [2] National Institute of Advanced Industrial Science and Techonology

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DEGRADATION AND SEASONAL EFFECTS OF AMORPHOUS SILICON MODULES DUE TO OUTDOOR EXPOSURE BY INDOOR AND OUTDOOR MEASUREMENTS

Sungwoo Choi[1], Ritsuko Sato[1], Tetsuyuki Ishii[2], Yasuo Chiba[1], Atsushi Masuda[1]

[1] Research Center for Photovoltaics, National Institute of Advanced Industrial Science and Technology, [2] Central Research Institute of Electric Power Industry

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PROCEDURES FOR PRECISE AND HIGHLY EFFICIENT OUTDOOR PERFORMANCE- MEASUREMENT OF PHOTOVOLTAIC MODULES

Kohji Masuda[1], Tadashi Obayashi[1], Yoshihiro Hishikawa[2]

[1] Japan Electrical Safety & Environment Technology Laboratories, [2] National Institute of Advanced Industrial Science and Technology (AIST)

7TuPo.214

TEMPERATURE DISTRIBUTION IN PHOTOVOLTAIC MODULE OPERATING IN REAL ENVIRONMENTAL CONDITIONS

Kazuki Okumoto[1], Kensuke Nishioka[1]

[1] Miyazaki University

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SOILING BY VOLCANIC ASH FALL ON PHOTOVOLTAIC MODULES AND EFFECTS BY HYDROPHILIC COATING ON MODULE COVER GLA SS

Tadashi Hirayama[1], Shota Saiki[1], Shuma Kawabata[1], Akihito Hirai[2], Yukio Yoshimura[3], Chizuko Yamamoto[4], Atsushi Masuda[4]

[1] Kagoshima University, [2] Central Automotive Products, [3] Kagoshima Prefectural Institute of Industrial Technology, [4] National Institute of Advanced Industrial Science and Technology

7TuPo.216

SHADING EFFECT IN PERFOMANCE EVALUATIONS OF CRYSTALLINE SILICON BARE CELLS

Haruya Shimura[1], Masahiro Yoshita[1], Yoshihiro Hishikawa[1]

[1] National Institute of Advanced Industrial Science and Technology (AIST)

7TuPo.217

Damages of PV Modules Detected By Using UAV Equipped With Thermal Imaging Camera

Der Ray Huang[1,2], Yu Jen Chen[1], Guo Zua Wu[3]

[1] Green Energy & Photonics Center, National Chiao Tung University, [2] Research Center for Applied Science, Academia Sinica, [3] Bio-IT Tech Division, Biomedical Technology & Device Research Center, ITRI

7TuPo.218

TEMPERATURE DEPENDENCE AND PERFORMANCE ANALYSIS OF PHOTOVOLTAIC MODULES

Jaffar Abdu[1], Shigeomi Hara[1], Sungwoo Choi[2], Yasuo Chiba[2], Atsushi Masuda[2], Makoto Kasu[1]

[1] Department of Electrical and Electronic Engineering, Saga University, [2] Research Center for Photovoltaics, National Institute of Advanced Industrial Science and Technology

7TuPo.219

SHORT-PERIOD FLUCTUATIONS OF SOLAR IRRADIANCE AND CLOUD CONDITIONS

Zhang Junfang[1], Kota Watanabe[1], Jun Yoshino[1], Tomonao Kobayashi[1]

[1] Gifu University

7TuPo.220

SOLAR IRRADIANCE ENHANCEMENT DUE TO CLOUD EDGE EFFECT

Zhang Junfang[1], Kota Watanabe[1], Jun Yoshino[1], Tomonao Kobayashi[1]

[1] Gifu University

7TuPo.221

SHORT TIME AND SPACE VARIATIONS OF SOLAR IRRADIANCE UNDER CLOUDS

Zhang Junfang[1], Kota Watanabe[1], Jun Yoshino[1], Tomonao Kobayashi[1], Yoshihiro Hishikawa[2], Takuya Doi[2]

[1] Gifu University, [2] National Institute of Advanced Industrial Science and Technology

7TuPo.222

THE OPERATING MODULE TEMPERATURE OF PV POWER PLANT IN THAILAND

Tanokkorn Chenvidhya[1], Manit Seapan[1], Wilawan Seakaew[1], Ballung Muenpinij[1], Dhirayut Chenvidhya[1], Krissanapong Kirtikara[1]

[1] CES Solar Cells Testing Center, Pilot Plant Development and Training Institute, King Mongkut's University of Technology Thonburi

7TuPo.223

STATISTICAL ANALYSIS OF AGING CHARACTERISTICS OF PV MODULE OUTPUT USING LINEAR INTERPOLATION METHOD

Takatoshi Kawase[1], Yuzuru Ueda[1]

[1] Department of Electrical Engineering, Tokyo University of Science

7TuPo.224

VALIDATION OF MEASUREMENT PROTOCOLS APPLICABLE TO PERFORMANCE CHARACTERIZATION OF VARIOUS EMERGING SOLAR CELLS

Masahiro Yoshita[1], Ayumi Sasaki[1], Takashi Ueda[1], Haruya Shimura[1], Yoshihiro Hishikawa[1]

[1] Research Center for Photovoltaics, National Institute of Advanced Industrial Science and Technology

7TuPo.225

QUANTIFYING AND ANALYSING THE VARIABILITY OF PV MODULE RESISTANCES RSC AND ROC TO UNDERSTAND AND OPTIMISE KWH/KWP MODELLING

Steven J. Ransome[1], Juergen Sutterlueti[2]

[1] Steve Ransome Consulting Ltd., [2] Gantner Instruments Environment Solutions Germany

7TuPo.226

HIGH EFFICIENT AND STABLE LARGE-AREA ORGANIC SOLAR CELLS BY BLADE COATING

Kuan-Min Huang[1], Hsin-Fei Meng[1], Hsiao-Wen Zan[1]

[1] Department of Photonics, National Chiao Tung University, [2] Institute of Physics, National Chiao Tung University

7TuPo.227

FAST TENPORAL RESPONSES OF SPECTRAL RESPONSIVITIES IN EMERGING PEROVSKITE SOLAR CELLS

Masahiro Yoshita[1], Ayumi Sasaki[1], Takashi Ueda[1], Haruya Shimura[1], Yoshihiro Hishikawa[1]

[1] Research Center for Photovoltaics, National Institute of Advanced Industrial Science and Technology

7TuPo.228

PERFORMACE CHANGE OF PHOTOVOLTAIC MODULES FOR 10 YEARS OUTDOOR EXPOSURE TEST IN TSUKUBA, JAPAN

Takumi Takashima[1]

[1] Research Center for Photovoltaics, National Institute of Advanced

Industrial Science and Technology (AIST)

7TuPo.229

CONSIDERATION OF TEMPERATURE CORRECTION OF OPEN CIRCUIT VOLTAGE CALCULATED FROM EL INTENSITY FOR OUTDOOR MEASUREMENT

Daisuke Kobayashi[1)], Takuya Oshima[1)], Kazuki Noguchi[1)], Yasuaki Ishikawa[1)], Yukiharu Uraoka[1)]

[1)] Graduate School of Materials Science, Nara Institute of Science and Technology

7TuPo.230

DEGRADATION ANALYSIS OF THE ENCAPSULANT MADE OF ETHYLENE VINYL ACETATE IN CRYSTALLINE SILICON PHOTOVOLTAIC MODULES USING POSITRON ANNIHILATION LIFETIME SPECTROSCOPY

Hideaki Hagihara[1)], Hiroaki Sato[1)], Yukiko Hara[2)], Sachiko Jonai[2)], Atsushi Masuda[2)]

[1)] Research Institute for Sustainable Chemistry, National Institute of Advanced Industrial Science and Technology (AIST), [2)] Research Center for Photovoltaics, National Institute of Advanced Industrial Science and Technology (AIST)

7TuPo.231

COMPARISON OF SOILING ON TILTED AND VERTICAL PHOTOVOLTAICS

Ryota Sakamoto[1)], Kensuke Nishioka[1)]

[1)] Graduate School of Engineering, Miyazaki University

7TuPo.232

RELIABILITY AND LONG TERM DURABILITY OF BIFACIAL PHOTOVOLTAIC MODULES USING TRANSPARENT BACKSHEET

Keita Arihara[1)], Ryosuke Koyoshi[1)], Yasuhiro Ishii[1)], Masaru Kadowaki[1)], Atsushi Nakahara[1)], Hitoshi Nishikawa[1)], Kinichi Ogawa[2)], Yasuo Chiba[2)], Atsushi Masuda[2)]

[1)] High-performance Materials Operations, Dai Nippon Printing Co., Ltd., [2)] National Institute of Advanced Industrial Science and Technology

7TuPo.233

PERFORMANCE COMPARISON ON THE FLOATING PV SYSTEM AND PV ROOFTOP SYSTEMS

Wilawan Seekaew[1)], Tanokkorn Chenvidhya[1)], Manit Seapan[1)], Ballang Muenpinij[1)], Dhirayut Chenvidhya[1)], Krissanapong Kirtikara[1)]

[1)] CES Solar Cells Testing Center (CSSC), King Mongkut's University of Technology Thonburi (KMUTT)

Tuesday, November 14
16:00-18:00 Room7+8+9 **Area8**

8TuPo.234

POWER LOSS PHOTOVOLTAIC MODULE DETECTION METHOD BY TWO STEPS

Kazumi Takano[1)], Yusuke Toda[1)], Masaru Yamashita[1)], Katsuhiko Shirasawa[2)]

[1)] Product Development, ITES CO.,Ltd., [2)] National Institute of Advanced Industrial Science Technology

8TuPo.235

PERFORMANCE LOSS OF 5-YEAR-OLD GRID CONNECTED PHOTOVOLTAIC SYSTEM IN THAILAND

Amornrat Limmanee[1)], Sasiwimon Songtrai[1)], Nuttakarn Udomdachanut[1)], Songpakit Kaewniyompanit[2)], Yukinobu Sato[3)], Masaki Nakaishi[3)], Songkiate Kittisontirak[1)], Kobsak Sriprapha[1)], Yukitaka Sakamoto[3)]

[1)] Solar Energy Technology Lab., National Electronics and Computer Technology Center, National Science and Technology Development Agency, [2)] Thai Tabuchi Electric Co., Ltd., [3)] Tabuchi Electric Co., Ltd.

8TuPo.236

ENERGY MANAGEMENT WITH 7KWP PV SYSTEM AND IOT MONITORING AT SUKSASONGKROH CHIANG MAI SCHOOL

Worrajak Muangjai[1)], Wichan Jantee[1)], Wathanyu Wannaprom[1)]

[1)] College of Integrated Science and Technology, Rajamangala University of Technology Lanna

8TuPo.237

INVERTER SIZING FOR A GRID CONNECTED SOLAR PHOTOVOLTAIC POWER PLANT USING GROUND MEASURED SOLAR IRRADIANCE AND TEMPERATURE: ANALYSIS USING NEW SIMULATION APPROACH

NIKHIL Pattath GOPI[1)], CHANDAN BANERJEE[1)], SUDHIR KUMAR SINGH[1)], VIKRANT SHARMA[1)], RAHUL PACHAURI[1)]

[1)] SOLAR RESOURCE ASSESSMENT DIVISION, NATIONAL INSTITUTE OF SOLAR ENERGY

8TuPo.238

A SOLAR TRACKING SYSTEM WITH DOWNWARD-FACING STANDBY STATE FOR DRY AREAS

Kensuke Nishioka[1)], Shota Kurogi[1)], Yasuyuki Ota[1)], Jun Hirota[2)]

[1)] Research Center for Sustainable Energy & Environmental Engineering, University of Miyazaki, [2)] THK Co., Ltd.

8TuPo.239

DIFFERENT PYRANOMETERS TO EVALUATE 60 kW PV SYSTEM PERFORMANCE

Yasuhiro Matsumoto[1)], Jos Antonio Urbano[1)], Ramón Peña,[1)], Maria de la Luz Olvera[1)], Miguel A. Luna[1)], Mauricio Ortega[1)], René Asomoza[1)]

[1)] Electrical Engineering Centro de Investigación y de Estudios Avanzados del IPN, Polytechnic Institute

8TuPo.240

ENERGY YIELD PREDICTION OF MULTI-JUNCTION CELLS CONSIDERING ATOMOSPHERIC PAREMETERS FLUCTUATION USING MONTE CARLO METHODS

Kenji Araki[1)], Yasuyuki Ota[2)], Takumi Sakai[2)], Kan-Hua Lee[1)], Kensuke Nishioka[2)], Masafumi Yamaguchi[1)]

[1)] Toyota Technological Institute, [2)] University of Miyazaki

8TuPo.241

ALBEDO IMPROVEMENT AND WEED PROOF EFFECTS OF A WHITE FOAM GLASS MADE FROM WASTE GLASS

Reita Kawashima[1)], Takumi Sakai[1)], Yasuyuki Ota[1)], Kensuke Nishioka[1)]

[1)] Department of Engineering, Miyazaki University

8TuPo.242

SITE-SPECIFIC UNCERTAINTIES AND MODELING CONSIDERATIONS FOR ENERGY YIELD SIMULATION OF BIFACIAL PV SYSTEMS OPERATING IN NORDIC CLIMATE

Ioannis (John) A. Tsanakas[1)], Marcus Graefenhain[1)], Frank Fiedler[2)]

[1)] Solar Energy Department, Institute for Energy Technology (IFE), [2)] Dalarna University, European Solar Engineering School

8TuPo.243

PREDICTION SIMULATION USING COUPLED MODEL TEMPERATURE DISTRIBUTION ON PV CELL IN WHICH HOTSPOT HAS OCCURRED DUE TO PARTIAL SHADE

Daisuke Wagi[1)], Ikuo Nanno[1)]

[1)] Advanced Course of Production Systems Engineering, National Institute of Technology, Ube College

8TuPo.244

THE MEASUREMENT METHOD OF I-V CURVE USING AN ARRAY TESTER WITH CAPACITOR

Yu Na Park[1)], Gil Soo Jang[1)], Suk Whan Ko[2)], Gi Hwan Gang[2)], Jung Hun So[2)], Young Seok Jung[2)], Young Chul Ju[2)], Hye Mi Hwang[2)], Hyung Jun Song[2)]

[1)] Korea University, [2)] Korea Institute of Energy Research

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The Electrical and Thermal Characteristic of Photovoltaic module between under partial shading and with short failure bypasses diode

Suk-Whan Ko[1)], Young-Chul Ju[1)], Hyung-Jun Song[1)], Gi-HWan Kang[1)], Hye-Mi Hwang[1)], Jung-Hun So[1)], Young-Seok Jung[1)]

[1)] Photovoltaic Laboratory, Korea Institute of Energy Research

8TuPo.246

SEPARATION METHOD OF SNOW COVER LOSS WITH SV METHOD

Yuta Takeuchi[1)], Yuzuru Ueda[1)], Masaki Shioya[2)]

[1)] Tokyo University of Science, [2)] KAJIMA CORPORATION

8TuPo.247

DEVELOPMENT OF AUTOMATIC DEFECT DETECTION METHOD IN PHOTOVOLTAIC MODULES BY INFRARED IMAGE ANALYSIS

Kenji Kamiya[1)], Yuzuru Ueda[1)]

[1)] Tokyo University of Science

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MEASUREMENT METHOD OF THE PV ARRAY PERFORMANCE BY USING PVMS AND OUTDOOR MEASURED I-V CURVE

Daiki Asai[1)], Yuzuru Ueda[1)], Yoshihiro Hishikawa[2)]

[1)] Tokyo University of Science, [2)] AIST

8TuPo.249

ANALYSIS ON RENEWABLE ENERGY SYSTEMS OPERATING AT MCAST CAMPUS, MALTA

Brian Azzopardi[1,2)], Nathaniel Cassar[1)], Renata Mikalauskiene[1)]

[1)] MCAST Energy Research Group, Malta College of Arts, Science and Technology (MCAST), [2)] Brian Azzopardi & Associates, Malta

8TuPo.250

OPTIMIZATION PROBLEM ON TRACKER ALLOCATION USING DIMENSIONLESS PARAMETERS – THEORY AND MENASUEMENT VALIDATION

Kenji Araki[1)], Kan-Hua Lee[1)], Masafumi Yamaguchi[1)]

[1)] Toyota Technological Institute

8TuPo.251

PERFORMANCE ANALYSIS OF A ROOFTOP PV PLANT AND A DESERT PV PLANT

Zou Xinjing[1)], Feifei Jiang[1)], Haitao Liu[1)]

[1)] Photovoltaic and Wind Power Systems, Quality Test Center Institute

of Electrical Engineering, Chinese Academy of Sciences

8TuPo.252

ONE YEAR OUTDOOR PERFORMANCE COMPARISON BETWEEN PERC AND HJT SOLAR SYSTEMS

I-Liang Chen[1)], Cheng-Lien Wang[1)], Min-An Tsai[2)], Hsin-Hsin Hsieh[2)], Paul P.C. Yang[3)], Wen-Lung Lu[4)]

[1)] Win Win Precision Technology Co., Ltd (WINAICO), [2)] Center for Measurement Standards, Industrial Technology Research Institute, [3)] Neo Solar Power Corporation (NSP),[4)] Department of Electrical Engineering, Chien Hsin University of Science and Technology

8TuPo.253

PV INSTALLED ON EV REDUCES WELL-TO-WHEEL CO2 EMISSIONS AND HAS GENERATION POTENTIAL TO REALISE CHARGE FREE EV

Takafumi Sato[1)], Shohei Namikawa[1)], Kaiichi Komoto[1)]

[1)] Environment and Energy Devision, Mizuho Information & Research Institute Inc.

Tuesday, November 14
16:00-18:00 Room7+8+9 Area9

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NOVEL USE OF PHOTOVOLTAIC SOLAR ENERGY BY THE WIDE AREA COMPUTER NETWORK INSTEAD OF POWER GRID CONNECTION

Kimihiko Saito[1)], Hideyuki Fukuhara[2,3)], Tetsu Saburi[2,3)], Michio Kondo[1,4)], Kenichiro Tomono[3,5)]

[1)] Faculty of Symbiotic Systems Science, Fukushima University, [2)] The University of Aizu, [3)] Cloud Business Alliance, [4)] Fukushima Renewable Energy Institute, Advansed Industrial Sience and Technology, [5)] EWM Japan

9TuPo.255

Impact of Battery Energy Storage with PV in University from Optimal Location and Sizing of Battery Considering Time of Use Rate (TOU) Using ABC Algorithm

Arnuphap Meechaka[1)], Anawach Sangswang[1)], Krissanapong Kirtikara[2)], Dhirayut Chenvidhya[2)], Panom Parinya[2)], Chamnan Limsakul[2)]

[1)] Department of Electrical Engineering, King Mongkut's University of Technology Thonburi, Thailand, [2)] CES Solar Cells Testing Center (CSSC), King Mongkut's University of Technology Thonburi (KMUTT), Thailand

9TuPo.256

AN EXPERIMENTAL STUDY ON P-F AND Q-V DROOP CONTROL OF PHOTOVOLTAIC POWER GENERATION BASED ON POWER OUTPUT CURTAILMENT CONTROL

Yuki Kimpara[1)], Muneaki Kurimoto[1)], Yusuke Manabe[1)], Toshihisa Funabashi[1)], Takeyoshi Kato[1)]

[1)] Nagoya University

9TuPo.257

A FUTURE-PROOF PILOT MICROGRID ENHANCING THE INTEGRATION OF PV GENERATION: 3D-MICROGRID PROJECT

Brian Azzopardi[1,6)], Francisco P. García-López[2)], Renata Mikalauskiene[1)], Jose L. Martnez-Ramos[2)], Alejandro Marano-Marcolini[2)], J. M. Maza-Ortega[2)], Manuel Barragn-Villarejo[2)], Salem Al-Agtash[3)], Lenos Hadjidemetriou[4)], Dimosthenis Ioannidis[5)]

[1)] MCAST Energy Research Group, Malta College of Arts, Science and Technology (MCAST), [2)] Electric Power Systems, ETSI, University of Seville, [3)] German Jordanian University, [4)] University of Cyprus, [5)] Center for Research and Technology Hellas / Information Technologies Institute, [6)] Brian Azzopardi & Associates

9TuPo.258

IMPACTS OF PHOTOVOLTAICS ON LOW VOLTAGE NETWORKS

Brian Azzopardi[1,2)], Gabdullin Yesbol Yerkinovich[1)], Carmel Xerri[3)], Karl Cilia[3)], George Portelli[3)]

[1)] MCAST Energy Research Group, Institute of Engineering and Transport, Malta College of Arts, Science and Technology (MCAST), [2)] Brian Azzopardi & Associates, [3)] Enemalta PLC

9TuPo.259

PROPOSAL OF POWER SYSTEM STATE ANALYSIS METHOD OVER A LONG TIME

Shunsuke Horie[1)], Yuji Iwane[1)], Tadahiro Goda[1)], Kazuto Yukita[1)], Toshiro Matsumura[1)], Yasuyuki Goto[1)]

[1)] Department of Electric Engeneer, Aichi Institute of Technology

9TuPo.260

REAL-TIME PRICING TO SECURE THE CAPACITY OF STORAGE BATTERIES FOR SUPPLY-DEMAND ADJUSTMENT

Tomoya Hirobe[1)], Jindan Cui[1)], Yuzuru Ueda[1)], Masakazu Koike[2)], Takayuki Ishizaki[3)], Jun-ichi Imura[3)]

[1)] Tokyo University of Science, [2)] Tokyo University of Marine Science and Technology, [3)] Tokyo Institute of Technology

9TuPo.261

PROPOSAL OF ELECTRIC-PRICE PLAN TO ACHIEVE TARGET POWER FLOW FOR DEMAND-SUPPLY CONTROL BY AGGREGATOR

Kengo Furue[1)], Jindan Cui[1)], Yuzuru Ueda[1)], Masakazu Koike[2)], Takayuki Ishizaki[3)], Jun-ichi Imura[3)]

[1)] Department of Electrical Engineering, Tokyo University of Science, [2)] Tokyo University of Marine Science and Technology, [3)] Tokyo

Institute of Technology

9TuPo.262

LESSONS LEARNED FROM RECENT DEMONSTRATIONS COMBINING PHOTOVOLTAIC GENERATION AND BATTERY STORAGE

Ben York[1)], Steven Coley[1)], Alex Magerko[1)], Cameron Riley[1)], Aminul Huque[1)]

[1)] Power Delivery and Utilization Electric Power Research Institute

9TuPo.263

ALLOCATION METHOD OF REQUEST POWER FLOW FOR HOUSE GROUP CLUSTERED BY CHARACTERISTIC OF HOUSE LOAD

Ryota Watanabe[1)], Yuzuru Ueda[1)], Masakazu Koike[2)], Takayuki Ishizaki[3)], Jun-ichi Imura[3)]

[1)] Department of Electrical Engineering, Tokyo University of Science, [2)] Tokyo University of Marine Science and Technology [3)] Tokyo Institute of Technology

9TuPo.264

OPTIMIZATION OF SOLAR MODULE TRANSPARENCY WITH HOUSEHOLD CONSUMPTION

Frank Hamelmann[1)], Kyle Pieper[2)], Johannes Weicht[1)]

[1)] Fachhochschle Bielefeld, [2)] University of Manitoba

Tuesday, November 14
16:00-18:00 Room7+8+9 Area10

10TuPo.265

OFFICIAL CERTIFIED PV MODULE REGISTRATION AND MANAGEMENT IN TAIWAN

Chia-Cheng Chou[1)], Hsien-Chen Ma[1)]

[1)] Energy & Environment Metrology Division, Center for Measurement Standards Industrial Technology Research Institute

10TuPo.266

SOLAR PHOTOVOLTAIC INTEGRATION IN WATER PUMPING SYSTEM

Brian Azzopardi[1,2)], Renata Mikalauskiene[1)], Antonio Espírito-Santo[3,4)], Andreas Kyprianou[5,7)], George E. Georghiou[6,7)]

[1)] MCAST Energy Research Group, Institute of Engineering and Transport, Malta College of Arts, Science and Technology (MCAST), [2)] Brian Azzopardi & Associates, [4)] Instituto de Telecomunicaes, [5)] Department of Mechanical and Manufacturing Engineering, University of Cyprus, [6)] Department of Electrical and Computer Engineering, PV Technology, University of Cyprus, [7)] FOSS Research Centre for Sustainable Energy, University of Cyprus

10TuPo.267

INTRODUCTION TO THE BASIC TRACK OF SOLAR MICROGRID CONVERGENCE TECHNOLOGY

Donghyun Hwang[1)], Chang-Sik Son[1)], Jinsoo Song[1)]

[1)] Silla University

10TuPo.268

NEXT-GENERATION EMERGING GREEN ENERGY INDUSTRY TECHNOLOGY WITH R&D -SHALUN GREEN ENERGY SCIENCE CITY

Kuo-Wei Huang[1)]

[1)] Green Energy and Environment Research Laboratories, Shalun Green Energy Science City Preparatory office

10TuPo.269

ENVIRONMENTAL ASSESSMENT OF VACUUM AND NON-VACUUM TECHNIQUES FOR THE FABRICATION OF Cu2ZnSnS4 (CZTS) THIN FILM PHOTOVOLTAIC CELLS

Mehrnoush Mokhtarimehr[1)], Ian Forbes[1)], Nicola Pearsall[1)]

[1)] Physics and Electrical Engineering NPAG, Department of Physics and Electrical Engineering, Northumbria University

10TuPo.270

THE ANALYSIS AND FORECAST OF THE ABANDONED AMOUNT FOR CHINA PV SYSTEM

Jia Zhang[1)], Lu Fang[1)]

[1)] Department of Renewable Energy, Institute of Electrical Engineering, Chinese Academy of Sciences

10TuPo.271

ANALYSIS OF COST-COMPETITIVENESS OF HYBRID III-V-SI CONCENTRATOR PHOTOVOLTAIC SYSTEMS

Kan-Hua Lee[1)], Kenji Araki[1)], Masafumi Yamaguchi[1)]

[1)] Toyota Technological Institute

10TuPo.272

SOLAR ENERGY BASED SUSTAINABLE LIVELIHOOD IN RESIDENTIAL BUILDINGS: AN APPROACH TOWARDS ZERO ENERGY BUILDINGS (ZEBS)

Dinesh K. Sharma[1)], Meenakshi Sharma[2)], Rajiv K. Chechi[1)]

[1)] Vidya College of Engineering, Meerut (Inida), [2)] Vidya Institute of Creative Teaching, Meerut (India)

10TuPo.273

IECRE A NEW CHALLENGE OF THE IEC FOR BANKABILITY OF PV POWER SYSTEMS

MASAAKI YAMAMICHI[1], Sarah Kurtz[2], George Kelly[3], Matthias Heinze[4], Hiroshi Takahashi[5]

[1] Reseach Division, RTS Corporation, [2] NREL, [3] Sunset Technology, [4] TUV-Rheinland, [5] Fuji Electric

10TuPo.274

IMPLEMENTATION OF A CIRCULAR ECONOMY BASED ON RECYCLED, REUSED AND RECOVERED INDIUM, SILICON AND SILVER MATERIALS FOR PHOTOVOLTAIC AND OTHER APPLICATIONS CABRISS – EU COLLABORATIVE PROJECT

Wolfram J. Palitzsch[1], Ulrich M. Loser[1]

[1] Loser Chemie GmbH

10TuPo.275

TRENDS IN PHOTOVOLTAIC APPLICATIONS - THE LATEST SURVEY RESULTS ON PV MARKETS AND POLICIES FROM THE IEA PVPS PROGRAMME

Gaëtan Masson[1], José Donoso[2], Izumi Kaizuka[2], Pius Hsser[3], Johan Lindhal[5], Francesca Tilli[6]

[1] Task 1 IEA PVPS, [2] UNEF, [3] RTS Corporation, [4] Nova Energie, [5] Svensk Solenergi, [6] GSE

Thursday, November 16
16:00-18:00 Room7+8+9 Area1

1ThPo.1

WET CHEMICAL ETCH-BACK SELECTIVE EMITTER FOR PERC SOLAR CELLS

Supawan Joonwichien[1], Yasuhiro Kida[1], Masaaki Moriya[1], Satoshi Utsunomiya[1], Katsuhiko Shirasawa[1], Hidetaka Takato[1]

[1] AIST

1ThPo.2

THIN CRYSTALLINE SILICON SOLAR CELLS WITH RIB STRUCTURE

Toshiki Otani[1], Satomi Takahashi[1], Kazuyoshi Nakada[2], Masakazu Hirai[3], Yukimi Ichikawa[1], Makoto Konagai[1]

[1] Electrical and Electronic Enginnering, Tokyo City University, [2] Tokyo Institute of Technology, [3] JST

1ThPo.3

CHARACTERIZATION OF ELECTRONIC PROPERTIES OF A-SI:H PASSIVATION LAYERS FOR SILICON HETERO-JUNCTION SOLAR CELLS

Shota Nunomura[1], Isao Sakata[1], Koji Matsubara[1]

[1] Research Center for Photovoltaics, National Institute of Advanced Industrial Science and Technology

1ThPo.4

INVESTIGATION OF HIGH-MOBILITY Ti-DOPED In2O3 (InOx:Ti) DEPOSITED BY PULSED DC MAGNETRON SPUTTERING FOR SOLAR CELL APPLICATIONS

Xia Yan[1], Krishanu Dey[1], Stella Van Eek[2], Sascha Kreher[2], Armin G. Aberle[1], Selvaraj Venkataraj[1]

[1] Solar Energy Research Institute of Singapore (SERIS), [2] FHR Anlagenbau GmbH

1ThPo.5

INVESTIGATION ON SURFACE PASSIVATION QUALITY OF NANOTEXTURED SILICON WAFER BY SPUTTERED AND ALD GROWN ALUMINUM OXIDE FILMS

Vamsi Krishna Komarala[1], Piyush Kumar Parashar[1], Jussi Toppari[2,3]

[1] Centre for Energy Studies, Indian Institute of Technology Delhi, [2] Nanoscience Centre, University of Jyvaskyla, [3] Department of Physics, University of Jyvaskyla

1ThPo.6

TBD

Lixin Song[1], Yi Zhang[1], Vineet Dua[1], Haixin Yang[1]

[1)] Research & Development Heraeus Precious Metals

1ThPo.7

Impact of the Cleaning Parameters for Multi Silicon via Dry etching Process

Cheng-Wen Kuo[1)], Ta-Ming Kuan[1)], Chih-Chiang Huang[1)], Li-Guo Wu[1)], Cheng-Yeh Yu[1)]

[1)] TSEC Corporation

1ThPo.8

NON-CONTACT MEASUREMENT OF FIELD-EFFECT PASSIVATION USING COMBINATION OF A LASER TERAHERTZ EMISSION MICROSCOPE AND A CORONA DISCHARGE

Akira Ito[1)], Toshimitsu Mochizuki[3)], Hidetoshi Nakanishi[1)], Jonathon Mitchell[3)], Katsuto Tanahashi[3)], Iwao Kawayama[2)], Masayoshi Tonouchi[2)], Katsuhiko Shirasawa[3)], Hidetaka Takato[3)]

[1)] SCREEN Holdins Co., Ltd., [2)] Institute of Laser Engineering, Osaka University, [3)] Fukushima Renewable Energy Institute, AIST

1ThPo.9

OPTO-ELECTRICAL MODELLING OF IBC SOLAR CELLS BASED ON HETEROJUNCTION CARRIER-SELECTIVE PASSIVATING CONTACTS

PAUL PROCEL[1)], GUANGTAO YANG[1)], OLINDO ISABELLA[1)], MIRO ZEMAN[1)]

[1)] DELFT UNIVERSITY OF TECHNOLOGY

1ThPo.10

IMPACT OF TRANSIENT TRAPPING ON STEADY STATE PHOTOCONDUCTANCE LIFETIME MEASUREMENTS

Yan Zhu[1)], Mattias K. Juhl[1)], Gianluca Coletti[2)], Ziv Hameiri[1)]

[1)] School of Photovoltaic and Renewable Energy Engineering, University of New South Wales, [2)] Energy Research Centre of the Netherlands

1ThPo.11

INVESTIGATION OF EFFECTIVE LIGHT TRAPPING STRUCTURE WITH SUB-MICRON SIZE FOR CRYSTALLINE SILICON THIN FILM SOLAR CELLS

Miki Sei[1)], Yasuyoshi Kurokawa[1)], Isao Takahashi[1)], Noritaka Usami[1)]

[1)] Department of Material Engineering, Nagoya University

1ThPo.12

MAPPING OF INTERNAL FIELD BETWEEN LOCALIZED CONTACTS IN BACK- CONTACT CELLS USING LASER TERAHERTZ EMISSION MICROSCOPE (LTEM)

Toshimitsu Mochizuki[1)], Akira Ito[2)], Tomihisa Tachibana[1)], Katsuto Tanahashi[1)], Masaaki Moriya[1)], Hidetoshi Nakanishi[2)], Iwao Kawayama[3)], Masayoshi Tonouchi[3)], Katsuhiko Shirasawa[1)], Hidetaka Takato[1)], Satoshi Utsunomiya[1)], Yasuhiro Kida[1)]

[1)] Fukushima Renewable Energy Institute, The National Institute of Advanced Industrial Science and Technology, [2)] SCREEN Holdings Co., Ltd., [3)] Institute of Laser Engineering, Osaka University

1ThPo.13

HIGH-QUALITY ALUMINUM-DOPED ZINC OXIDE FABRICATED BY A SEED LAYER APPROACH FOR THIN-FILM SILICON SOLAR CELL APPLICATIONS

Anh Huy Tuan Le[1)], Duy Phong Pham[1)], Cam Phu Thi Nguyen[1)], Junsin Yi[1)]

[1)] College of Information and Communication Engineering, Sungkyunkwan University

1ThPo.14

IRON CONTAMINATION NEAR SURFACE OF MC-SILICON SOLAR CELLS OBSERVED BY MÖSSBAUER SPECTROSCOPIC MICROSCOPE

Yuji Ino[1)], Kazuo Hayakawa[1)], Kenichi Yukihira[1)], Koichi Moriguchi[2)], Hiroyoshi Soejima[1)], Keiko Ogai[2)], Yoshihito Harada[2)], Katsuhiko Shirasawa[3)], Hidetaka Takato[3)], Yutaka Yoshida[1)]

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1ThPo.15

FLEXIBLE CRYSTALLINE SILICON SOLAR CELLS WITH VERTICALLY ALIGNED MICROWIRES

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1ThPo.16

ITO-FREE CARRIER SELECTIVE CONTACT FOR HIGH-EFFICIENCY CRYSTALLINE SI SOLAR CELLS

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1ThPo.17

LIGHT SOAKING ENHANCED PERFORMANCE OF ULTRA-THIN ALUMINUM OXIDE FILMS FOR PASSIVATED-CONTACT SILICON SOLAR CELLS

Zheng Xin[1,2)], Zhi Peng Ling[1)], Cangming Ke[1)], Er-Chien Wang[1)], Gurleen Kaur[2)], Armin G. Aberle[1,2)], Rolf Stangl[1)]

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1ThPo.18

INPROVEMENT OF MIRROR ETCHING PROCESS BY NEWLY SOLUTION FOR MONO CRYSTALLINE SILICON SOLER CELLS

Tsuyoshi Kawakami[1)], Hiroyuki Kanda[1)], Seigo Ito[1)]

[1)] University of Hyogo

1ThPo.19

UNDERSTANDING AND OVERCOMING DIFFERENTIAL SPECTRAL RESPONSE (DSR) MEASUREMENT ARTEFACTS FOR SOLAR CELLS WITH POOR SHUNT RESISTANCE

Jian Wei Ho[1)], Johnson Wong[1)], Percis Teena C S[1)], Samuel Raj[1)], Armin G. Aberle[1)]

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1ThPo.20

The properties of carrier selective tunnel oxide layer by using various chemical solutions for tunneling based solar cell application

Jinjoo Park[1)], Jiyoon Kang[1)], Cheolmin Park[2)], Shihyun Ahn[1)], Junsin Yi[1)]

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1ThPo.21

2DRES--A 2D NUMBERICAL PROGRAM FOR EXTRACTING RESISTANCE PROPERTIES OF INDUSTRIAL SOLAR CELLS

Lujia Xu[1)], Johnson Kai Chi Wong[1)]

[1)] Solar Energy Research Institute of Singapore, National University of Singapore

1ThPo.22

CARRIER SELECTIVE TRANSPORT PATH IN A MOLYBDENUM OXIDE/TUNNEL INSULATOR/N-CSI CELL

Yutaka Hayashi[1)], Takefumi Kamioka[1)], Yuki Isogai[1)], Kyotaro Nakamura[2)], Yoshio Ohsita[1)]

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1ThPo.23

DOUBLE LAYERED ALUMINUM OXIDE FILMS DEPOSITED BY REACTIVE SPUTTERING FOR SURFACE PASSIVATION OF CRYSTALLINE SILICON

Toshiya Marukane[1)], Daiki Oka[1)], Yasushi Hotta[1)], Haruhiko Yoshida[1)], Kouji Maeda[1)], Koji Arafune[1)]

[1)] University of Hyogo

1ThPo.24

SURFACE PASSIVATION USING SILICON OXIDE DEPOSITED BY ATMOSPHERIC PRESSURE PLASMA COATING SYSTEM

Thomas Mueller[1)], Natasha PYE[1)], Jia GE[1)], Markus PRINZ[2)], Thomas MARKERT[2)]

[1)] Solar Energy Research Institute of Singapore (SERIS), [2)] Plasmatreat Asia Pacific

1ThPo.25

INNOVATIVE PECVD REACTOR CONCEPT FOR SMART MANUFACTURING OF SILICON HETEROJUNCTION SOLAR CELLS

Silvia Martin de Nicolas[1)], Omid Shojaei[2)], Antoine Descoeudres[1)], Loris Barraud[1)], Fabrice Jeanneret[2)], Arnaud Limouzin[2)], Matthieu Despeisse[1)], Christophe Ballif[1)]

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1ThPo.26

ELECTRICAL AND OPTICAL PROPERTIES OF REGULAR PYRAMIDAL STRUCTURES IN SILICON SOLAR CELLS

Jeewoong Yang[1)], Se Jin Park[1)], Changhyun Lee[1)], Seungeun Park[1)], HyunJung Park[1)], Ji Yeon Hyun[1)], Yoonmook Kang[2)], Hae-seok Lee[1)], Donghwan Kim[1)]

[1)] Department of Materials science and engineering, and Optoelectronics Convergence Research Center, SERC, Korea University, [2)] KU-KIST Green School, Graduate School of Energy and Environment, Korea University

1ThPo.27

USE OF A TRANSFORMED DIODE EQUATION FOR CHARACTERIZATION OF THE IDEALITY FACTOR AND SERIES RESISTANCE OF CRYSTALLINE SILICON SOLAR CELLS BASED ON LIGHT I-V CURVES

Sujeong Jeong[1)], Yoonmook Kang[2)], Hae-seok Lee[2)], Soo Min Kim[3)], Donghwan Kim[1)]

[1)] Department of Materials Science and Engineering, Korea University, [2)] KU KIST Green School, Graduate School of Energy and Environment, Korea University, [3)] Energy Technology Research Center, Gumi Electronics & Information Technology Research Institute

1ThPo.28

Withdrawn

1ThPo.29

LOW COST, DOPANT-FREE HETEROJUNCTION INTERDIGITATED BACK CONTACT SOLAR CELL ON EXFOLIATED THIN CRYSTALLINE SILICON SUBSTRATE

Sung-Hae Kim[1)], Yoon-Ho Nam[1)], Jae-Won Song[1)], Jung-Ho Lee[1)]

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1ThPo.30

PROPERTIES OF PHOSPHORUS DOPED SILICON LAYER IN TUNNEL OXIDE PASSIVATED CONTACT SOLAR CELL

Changhyun Lee[1)], Se Jin Park[1)], Seungeun Park[1)], HyunJung Park[1)], Jeewoong Yang[1)], Ji yeon Hyun[1)], Yoonmook Kang[2)], Hae-Seok Lee[1)], DonghwanKim[1)]

[1)] Department of Materials science and engineering, Korea University, [2)] KU-KIST Green School, Graduate School of Energy and Environment, Korea University

1ThPo.31

UNDERSTANDING OF ANNEALING EFFECTS ON PASSIVATION QUALITY OF POLY-SI/SIOX/C-SI PASSIVATED CONTACTS

HyunJung Park[1)], Hyomin Park[1)], Se Jin Park[1)], Soohyun Bae[1)], Seungeun Park[1)], Jee Woong Yang[1)], Ji Yeon Hyun[1)], Yoonmook Kang[2)], Hae-Seok Lee[2)], Donghwan Kim[1)], Chang Hyun Lee[1)], Seung Hyun Shin[1)]

[1)] Korea University, [2)] KU-KIST Green School Graduate School of Energy and Environment

1ThPo.32

FULLY ION IMPLANTED N-TYPE BIFACIAL SILICON SOLAR CELL

Katsuto Tanahashi[1)], Masaaki Moriya[1)], Shalamujiang Simayi[1)], Yasuhiro Kida[1)], Satoshi Utsunomiya[1)], Tetsuo Fukuda[1)], Katsuhiko Shirasawa[1)], Hidetaka Takato[1)]

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1ThPo.33

MULTI-LAYER PECVD FOR IMPROVED SURFACE PASSIVATION OF SOLAR CELLS.

Jonatho Mitchell[1)]

[1)] Photovoltaic Power Team, The National Institute of Advanced Industrial Science and Technology (AIST)

1ThPo.34

A STUDY OF THE LASER ABLATION PATTERN OPTIMIZATION OF PERC PASSIVATION LAYER.

Eunggoo Lee[1)], Seunghoon Lee[1)], Soohyun Bae[1)], Yoonmook Kang[1)], Hae-Seok Lee[1)], Donghwan Kim[1)]

[1)] Korea University

1ThPo.35

APPLICATION OF INKJET PRINTING TO BACK CONTACT PATTERNING OF THIN IBC-SHJ SOLAR CELLS

Kimihiko Saito[1)], Hideyuki Takagishi[1,2)], Hiroshi Noge[1)], Michio Kondo[1,3)], Kimihiko Saito[1)]

[1)] Faculty of Symbiotic Systems Science, Fukushima University, [2)] Japan Advanced Institute of Science and Technology, [3)] Fukushima Renewable Energy Institute, Advansed Industrial Sience and Technology

1ThPo.36

PASSIVATED MOLYBDENUM OXIDE CONTACTS FOR CRYSTALLINE SILICON SOLAR CELLS

Woojun Yoon[1)], James E. Moore[2)], David Scheiman[1)], Eunhwan Cho[3)], Young-Woo Ok[3)], Nicole A. Kotulak[4)], Phillip P. Jenkins[1)], Ajeet Rohatgi[3)], Robert J. Walters[1)]

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1ThPo.37

TRANSMISSION ELECTRON MICROSCOPY OF SPHERICAL SILICON SOLAR CELLS WITH SNOX:F ANTI-REFLECTION FILMS

Takeo Oku[1)], Youichi Kanamori[2)], Mikio Murozono[2)]

[1)] Department of Materials Science, The University of Shiga Prefecture, [2)] Clean Venture 21 Co.

1ThPo.38

EFFECTS OF HYDROGEN PEROXIDE TREATMENT ON a-Si:H(i) PASSIVATION LAYER DEPOSITED BY FACING TARGET SPUTTERING (FTS) METHOD

Faris Akira Bin Mohd Zulkifly[1)], Yuta Shiratori[1)], Kazuyoshi Nakada[1)], Shinsuke Miyajima[1)]

[1)] Department of Electrical and Electronic Engineering, Tokyo Institute of Technology

1ThPo.39

IGNITION CONTROL OF THE EXPLOSIVE CRYSTALLIZATION OF AMORPHOUS SILICON FILMS BY FLASH LAMP ANNEALING

Daiki Sato[1)], Keisuke Ohdaira[1)]

[1)] Japan Advanced Institute Science and Technology

1ThPo.40

MODULATION OF DEPOSITION TEMPERATURE OF TIO2 FOR PASSIVATIING ELECTRON SELECTIVE CONTACT FOR SILICON HETEROJUNTION SOLAR CELL

Takeya Mochizuki[1)], Kazuhiro Gotoh[1)], Isao Takahashi[1)], Yasuyoshi Kurokawa[1)], Noritaka Usami[1)]

[1)] Graduate School of Engineering, Nagoya University

1ThPo.41

DISTRIBUTION OF OXYGEN PRECIPITATES IN HIGH PERFORMANCE MC-SILICON

Ryohei Nakayama[1)], Takuto Kojima[1)], Atsushi ogura[1)], Kentaro Kutsukake[2)]

[1)] Department of Electronics, Meiji University, [2)] Tohoku University

1ThPo.42

GAS TEMPERATURE DETERMINATION AT MICROCRYSTALLINE SILCON FILM GROWTH UNDER HIGH GROWTH RATE CONDITION USING VHF-PECVD METHOD

Yasushi Sobajima[1)], Haruka Kubota[1)], Akihisa Matsuda[1)], Hiroaki Okamoto[1)]

[1)] Graduate School of Engineering, Science Osaka University

1ThPo.43

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Roman Bansen[1)], Christian Ehlers[1)], David Uebel[1)], Thomas Teubner[1)], Torsten Boeck[1)]

[1)] Leibniz Institute for Crystal Growth (IKZ)

1ThPo.44

BANDGAP-VOLTAGE OFFSET OF THIN SILICON SOLAR CELLS

André Augusto[1)], Richard R. King[1)], Christiana Honsberg[1)], Stuart G. Bowden[1)]

[1)] School of Electrical, Computer and Energy Engineering, Arizona State University

1ThPo.45

EXTREMELY HIGH-FREQUENCY IMPEDANCE ANALYSIS ON PASSIVATION FILM WITH LARGE LEAKAGE CURRENT FOR PASSIVATTED CONTACTS

Takuto Kojima[1)], Takuya Hiyama[1)], Tappei Nishihara[1)], Kyotaro Nakamura[1)], Atsushi Ogura[1)], Yoshio Ohshita[2)]

[1)] School of Science and Technology, Meiji University, [2)] Toyota Technological Institute

1ThPo.46

PASSIVATION EFFECT OF ULTRA-THIN SINX FILMS FORMED BY CAT-CVD FOR CRYSTALLINE SILICON SURFACES

Hao Song[1)], Keisuke Ohdaira[1)]

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1ThPo.47

CHARACTERIZATION OF p-type Cu2O:N/n-type μc-Si:H TUNNEL RECOMBINATION JUNCTION FOR PEROVSKITE/ c-Si TANDEM SOLAR CELLS

Jinwoo Kim[1)], Yuki Takiguchi[2)], Shinsuke Miyajima[1)]

[1)] Department of Electrical and Electronic Engineering, Tokyo Institute of Technology, [2)] Depertment of Physical Electronics, Tokyo Institute of Technology

1ThPo.48

PREPARATION OF Si AND Ge THIN FILM BY INDUCTIVELY COUPLED PLASMA ASSISTED REACTIVE SPUTTERING

Dongju Shim[1)], Tetsuya Kaneko[1)], Kunio Okimura[1)], Haruo Shindo[2)], Masao Isomura[1)]

[1)] Department of Electrical and Electronic Engineering, Tokai University, [2)] Plasma Science and Engineering Institute

1ThPo.49

CHARACTERIZATION OF COPPER IODIDE HOLE-SELECTIVE LAYER FOR SILICON SOLAR CELL APPLICATIONS

Kiseok Jeon[1,2)], Hongsub Jee[1)], Sangwoo Lim[2)], Chaehwan Jeong[1)]

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1ThPo.50

DEPOSITION MECHANISM OF AMORPHOUS SILICON THIN FILM ON SILICON WAFER WITH <100> AND <111> ORIENTATION

Liping Zhang[1)], Renfang Chen[1)], Zhuopeng Wu[1)], Zhengxin Liu[1)]

[1)] Shanghai Institute of Microsystem and Information Technology, Chinese Academy of Sciences

1ThPo.51

SPRAY COATING OF EXTREMELY CONFORMAL TITANIUM OXIDE THIN FILMS FOR ANTIREFLECTION ON TEXTURED SILICON

Thomas Gascou[1)], Zhiming Kam[1)], Florian Palitschka[2)], Ananthanarayanan Krishnamoorthy[1)], Xinhang Li[1,3)], Mei Gi Toh[1)], Armin G. Aberle[1,3)], Fen Lin[1)]

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1ThPo.52

ARTIFACTS IN PHOTOLUMINESCENCE IMAGING FOR SILICON WAFERS AND SOLAR CELLS

Hannes Höffler[1)], Georg Dost[1)], Andreas Brand[1)], Florian Schindler[1)],

Martin Schubert[1)], Johannes Greulich[1)]

[1)] PV Production Technology and Quality Assurance, Fraunhofer ISE

1ThPo.53

ACCELERATING LCO DEVELOPMENT – FROM LINES TO DOTS

Alma Spribille[1)], Andreas A. Brand[1)], Jan Hofmann[1)], Gernot Emanuel[1)], Jan Nekarda[1)], Nakahara Masahiro[2)], Marwan Dhamrin[2)]

[1)] MWT Solar Cells / Printing Technology, Fraunhofer ISE, [2)] Toyo Aluminium K. K.

1ThPo.54

CHARGED STRONTIUM SILICATE LAYER FOR FIELD EFFECT PASSIVATION OF SILICON SOLAR CELLS

Yasushi Hotta[1)], Shota Taniwaki[1)], Haruhiko Yoshida[1)], Koji Arafune[1)], Shin-ichi Satoh[1)]

[1)] Department of Engineering, University of Hyogo

1ThPo.55

CHARGE PROPERTIES OF STACKING STRUCTURE OF DIPOLE INTERFACED AND ITS FIELD EFFECT PASSIVATION EFFECT

Ikuya Saiki[1)], Shintaro Nishi[1)], Haruhiko Yoshida[1)], Koji Arafune[1)], Shin-ichi Satoh[1)], Yasushi Hotta[1)]

[1)] Graduate School of Engineering, University of Hyogo

1ThPo.56

THE STRUCTURE CHANGE AND ELECTRICAL CHARACTERISTICS WITH VARIED ANNEALING CONDITION OF AMORPHOUS SILICON/ THIN SILICON OXIDE/ CRYSTALLINE SILICON STRUCTURE

Sungjin Choi[1,2)], Kwan Hong Min[1,2)], Myeong Sang Jeong[1,2)], Jeong In Lee[1)], Min Gu Kang[1)], Hee-eun Song[1)], Donghwan Kim[2)], Ka-Hyun Kim[1)]

[1)] Photovoltaic Laboratory, Korea Institute of Energy Research, [2)] Korea University

1ThPo.57

IMPACT OF PEDOT: PSS AND LIGHT SOAKING ON PASSIVATION PROPERTIES OF ULTRATHIN ATOMIC LAYER DEPOSITED TIOX LAYERS

Gurleen Kaur[1,2)], Neeraj Dwivedi[1)], Zheng Xin[2)], Baochen Liao[2)], Zhi Peng Ling[2)], Rolf Stangl[2)], Aaron Danner[1)]

[1)] Spin and Energy Lab, Department of Electrical and Computer Engineering, National University of Singapore, [2)] Solar Energy Research Institute of Singapore, National University of Singapore

1ThPo.58

PHOTOLUMINESCENCE AND ELECTROLUMINESCENCE CHARACTERISTICS FROM Si AND Ge HETEROJUNCTION SOLAR CELLS

Makoto Konagai[1)], Rei Kondo[1)], Kentarou Sawano[1)], Yukimi Ichikawa[1)]

[1)] Advanced Research Laboratories, Tokyo City University

1ThPo.59

DEVELOPMENT OF SILICON HETEROJUNCTION SOLAR CELL TECHNOLOGY FOR MANUFACTURING

Xixiang Xu[1)], Cao Yu[1)], Miao Yang[1)], Gangqiang Dong[1)], Fuguo Peng[1)], Chengjian Hong[1)], Ge Cui[1)], Hui Yan[2)], Jinyan Zhang[1)], Yuanmin Li[1)], Yongcai He[2)]

[1)] Chengdu R&D Center, Hanergy Thin Film Power Ltd., [2)] Beijing University of Technology, College of Materials S&E

1ThPo.60

Study of the Silicon Crystallization on Aluminum-Induced Crystallization According to the Aluminum Deposition Temperatures

Doo Won Lee[1)], Muhammad Fahad Bhopal[1)], Soo Hong Lee[1)]

[1)] Department of Electronics Engineering, Sejong University

1ThPo.61

ADVANCED TEMPERATURE-DEPENDENT CHARACTERIZATION OF SILICON NITRIDE SURFACE PASSIVATION LAYER

Shuai Nie[1)], Yan Zhu[1)], Simone Bernardini[2)], Mariana Bertoni[2)], Ziv Hameiri[1)]

[1)] The University of New South Wales, [2)] Arizona State University

1ThPo.62

Influence of internal stress on Ni/Cu/Ag plated contact of crystalline Si solar cells for enhancing adhesion reliability

Sang Hee Lee[1)], Ah Reum Lee[1)], Han Jun Kim[1)], Soo Hong Lee[1)]

[1)] Department of Electronics Engineering, Sejong University

1ThPo.63

IMPROVED HOT-ZONE FOR MANUFACTURING LOW-OXYGEN SILICON INGOTS FOR PERC

Sungsun Baik[1)], Boram Lee[1)], Youngsik Hahn[1)], Wooseok Nam[1)]

[1)] R&D Center, Woongjin Energy Co. Ltd.

1ThPo.64

PERFORMANCE OF OPTICAL WIRELESS POWER TRANSFER

SYSTEM USING A VERTICAL CAVITY SURFACE EMITTING LASER ARRAY

Shinsuke Miyajima[1)], Kazuyoshi Nakada[1)], Yuta Shiratori[1)], Jinwoo Kim[1)], Tomoyuki Miyamoto[1)], Kunta Yoshikawa[2)], Kenji Yamamoto[2)]

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1ThPo.65

THE STUDY ON THE OXYGEN AND CARBON CONCENTRATION TO INGOTS WITH 2 AND 3 METER IN LENGTH GROWN BY CZOCHRALSKI ETHOD FOR SOLAR CELLS

Kwanghun Kim[1)], Sungsun Baik[1)]

[1)] Growing Technology Team, Woongjin Energy

1ThPo.66

IMPROVING THE 3 IN 1 SUITABLE REAR EMITTER OF HIGH EFFICIENCY SILICON HETEROJUNCTION REAR EMITTER CELL

Sang Ho Kim[1)], Jin joo Park[2)], Pham Duy Phong[2)], Young jun Kim[2)], Jong hoon Shin[1)], Junsin Yi[2)]

[1)] Department of Energy Science, Sungkyunkwan University, [2)] College of Information and Communication Engineering, Sungkyunkwan University

1ThPo.67

DARK I-V CHARACTERISTICS OF A SOLAR CELL FABRICATED AT VARIOUS GAS FLOW INJECTION TEMPERATURES

Jackson Bweupe[1)], Jeong eun Park[2)], Taewoo Eom[1)], Sang Yong Park[1)], Jung Hoon Park[1)], Donggun Lim[1,2)]

[1)] Department of IT convergence, Korea National University of Transportation, [2)] Department of Electronic Engineering, Korea National University of Transportation

1ThPo.68

OPTIMIZATION OF FRONT AND BACK CONTACT FORMATION OF HYBRID (FRONT-SIDE DIFFUSED, REAR-SIDE HETEROJUNCTION) SOLAR CELL PRE-CURSORS

Mei Huang[1)], Puqun Wang[1)], Ning Chen[1)], Esber Michelle Liwanag[1)], Rolf Stangl[1)]

[1)] Solar Energy Research Institute of Singapore (SERIS), National University of Singapore (NUS)

Thursday, November 16
16:00-18:00 Room7+8+9 **Area2**

2ThPo.69

ALD-DEPOSITED ZNTIO BUFFER LAYER FOR CU(IN,GA)SE2 THIN FILM SOLAR CELLS

Suhwan Hwang[1)], Hojin Lee[1)], Sun-Cheol Kim[2)], Byung Tae Ahn[1)], Byungha Shin[1)]

[1)] Department of Materials Science and Engineering, Korea Advanced Institute of Science and Technology (KAIST), [2)] Samsung Electronics Co., Ltd.

2ThPo.70

FIRST PRINCIPLES STUDY ON PHASE STABILITIES AND ELECTRONIC STRUCTURES OF STANNITE-TYPE CuIn5Se8 AND RELATED COMPOUNDS, CuIn5S8, CuGa5Se8, CuGa5S8, AgIn5Se8, AgIn5S8, AnGa5Se8, and AgGa5S8

Seitarou Nakashima[1)], Tsuyoshi Maeda[1)], Takahiro Wada[1)]

[1)] Department of Materials Chemistry, Ryukoku University

2ThPo.71

EFFECT OF SODIUM ADDITION FOR CTS THIN-FILM SOLAR CELLS FABRICATED ON AN ALKALI-FREE GLASS SUBSTRATE

Shohei Sasagawa[1)], Genki Nishida[1)], Akiko Takeuchi[1)], Hironori Katagiri[1)], Hideaki Araki[1)]

[1)] National Institute of Technology, Nagaoka College

2ThPo.72

EFFECTS OF RUBIDIUM FLUORIDE POST-DEPOSTION TREATMENT ON CU(IN, GA)SE2 GRWON ON FLEXIBLE SUBSTRATES

Hojin Lee[1)], Soomin Song[2)], Kihwan Kim[2)], Byungha Shin[1)]

[1)] Korea Advanced Institute of Science and Technology, [2)] Korea Institute of Energy Research (KIER)

2ThPo.73

EFFECT OF INTERFACIAL COMPOUNDS BETWEEN BACK ELECTRODE AND ABSORBER ON PERFORMANCE IN ZNSNP2 SOLAR CELLS

Taro Kuwano[1)], Shigeru Nakatsuka[1)], Yoshitaro Nose[1)]

[1)] Kyoto University

2ThPo.74

HIGH-EFFICIENCY CZTSE SOLAR CELLS PREPARED BY PULSE CURRENT ELELCTRODEPOSITION AND SELENIZATION AT LOW SE VAPOR PRESSURE

Ming-Jer Jeng[1)], Liyong Yao[2)], Jinlian Bi[2)], Jianping Ao[2)], Zhaojing Zhang[2)], Guozhong Sun[2)], Yun Sun[2)], Liann-Be Chang[1)]

[1)] Chang Gung University, [2)] Nankai University

2ThPo.75

In2S2:M (M=V, Ti, Nb) FILMS FOR INTERMEDIATE BAND SOLAR CELLS

Roland Scheer[1)], Leonard Wägele[1)], Tanja Jawinski[1)], Galina Gurieva[2)], Holger von Wenckstern[3)], R. Scheer[1)]

[1)] Institute of Physics Martin-Luther-Universität, [2)] Helmholtz-Zentrum Berlin, Department Structure and Dynamics of Energy Materials, [3)] Universitt Leipzig, Institute of Experimental Physics II

2ThPo.76

COMPOSITION CHANGES IN SPUTTERED HOMOGENEOUS Zn(O1-X,SX) THIN FILMS FOR Cu(In,Ga)Se2 THIN-FILM SOLAR CELL APPLICATIONS

Dae-Hyung Cho[1,2)], Jae-Hyung Wi[1)], Woo-Jung Lee[1)], Hye-Jung Yu[1)], Won Seok Han[1)], Byungha Shin[2)], Yong-Duck Chung[1,3)]

[1)] Electronics and Telecommunications Research Institute (ETRI), [2)] Korea Advanced Institute of Science and Technology (KAIST), [3)] Korea University of Science and Technology (UST)

2ThPo.77

FABRICATION OF P-TYPE CONDUCTIVE BaCuSF SINGLE LAYER AND BaCuSF/ITO BILAYER FILMS AND PPLICATION TO BACK CONTACT OF CdS/CdTe SOLAR CELLS

Kenji Miki[1)], Toshiyuki Kawabe[1)], Yasuyoshi Shiina[2)], Shota Okamoto[2)], Tamotsu Okamoto[2)], Takahiro Wada[1)]

[1)] Department of Materials Chemistry, Ryukoku University, [2)] National Institute of Technology, Kisarazu College

2ThPo.78

FIRST PRINCIPLES STUDIES ON FORMATION OF MoSe2 AT INTERFACES BETWEEN ABSORBER AND Mo LAYERS IN Cu(In,Ga)Se2 AND Cu2ZnSn(S,Se)4 SOLAR CELLS

Akio Shigemi[1)], Takahiro Wada[1)]

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2ThPo.79

CHARACTERIZATION OF AgGaTe2 LAYER PREPARED BY VARYNG Ag/Ga RATIO AND ANALYSIS OF PHASE DIAGRAM

Aya Uruno[1)], Yohei Sakurakawa[1)], Masakazu Kobayashi[1,2)]

[1)] Department of Electrical Engineering and Bioscience, Waseda University, [2)] Waseda University, Lab. for Mat. Sci. & Tech.

2ThPo.80

OPTICAL PROPERTIES AND ELECTRONIC PROPERTIES OF Cu2Zn(Ge,Sn)Se4 AND Cu2Zn(Ge,Sn)S4

Kensuke Tsuji[1)], Tsuyoshi Maeda[1)], Takahiro Wada[1)]

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2ThPo.81

OPTICAL PROPERTIRS AND BAND STRUCTURES OF Cu2(Ge,Sn)S3 AND Cu2(Ge,Sn)Se3

Qing Chen[1)], Tsuyoshi Maeda[1)], Takahiro Wada[1)]

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2ThPo.82

ENHANCEMENT OF OPEN-CIRCUIT-VOLTAGE BY HEAT-LIGHT SOAKING FOR NAF-BASED ALKALI TREATED CIGS SOLAR CELLS

Junpei Matsuura[1)], Kosuke Shudo[1)], Ishwor Khatri[2)], Mutsumi Sugiyama[1,2)], Tokio Nakada[2)]

[1)] Faculty of Science and Technology, Tokyo University of Science, [2)] Research Institute for Science and Technology, Tokyo University of Science

2ThPo.83

GROWTH OF SRGE2 THIN FILMS ON GE SUBSTRTES

Toshifumi Imajo[1)], Kaoru Toko[1)], Ryota Takabe[1)], Takashi Suemasu[1)]

[1)] University of Tsukuba

2ThPo.84

INFLUENCE OF SUBSTRATE TEMPERATURE ON THE PROPERTIES OF RF SPUTTERED TIN SULFIDE THIN FILMS FOR SOLARCELL APPLICATIONS

Jeha Kim[1)], Vinaya Kumar Arepalli[1)], Younbae Shin[1)], Cha Ran Lee[1)]

[1)] Cheongju University

2ThPo.85

AG-SN-S SYNTHESIS BY SOLID-PHASE REACTION FROM BINARY SULFIDES

Panha Eang[1)], Hideaki Araki[2)], Yoji Akaki[3)], Mitsuki Nakashima[4)], Toshiyuki Yamaguchi[4)], Satoru Seto[5)], Shigeyuki Nakamura[1)]

[1)] National Institute of Technology, Japan Tsuyama College, [2)] National Institute of Technology, Japan Nagaoka College, [3)] National Institute of Technology, Japan Miyakonojo College, [4)] National Institute of Technology, Japan Wakayama College, [5)] National Institute of Technology, Japan Ishikawa College

2ThPo.86

EPITAXIAL CIGS THIN FILMS ON MO BACK CONTACT FOR SOLAR CELLS

Yuta Ando[1)], Takeru Yamagami[1)], Ishwor Khatri[2)], Mutsumi Sugiyama[1,2)], Tokio Nakada[2)]

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2ThPo.87

FABRICATION OF HYBRID Zn(O,S)/CdS BUFFER LAYER FOR

CIGS SOLAR CELL

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2ThPo.88

FABRICATION OF CIGSE SOLAR CELLS BY USING NON-VACUUM ULTRASONIC SPRAY PYROLYSIS

SeongYeon Kim[1)], JunHo Kim[1)]

[1)] Incheon National University

2ThPo.89

FABRICATION OF INP THIN FILM BY PHOSPHIDATION

Yuming Yang[1)], Ryoji Katsube[1)], Shigeru Nakatsuka[1)], Yoshitaro Nose[1)]

[1)] Kyoto University

2ThPo.90

OPTICAL ABSORPTION SPECTRA OF Cu2ZnSn(S,Se)4 THIN FILM SOLAR CELLS BY FOURIER TRANSFORM PHOTOCURRENT SPECTROSCOPY

Abd Rahman binti Nur Syazwana[1)], Tanabe Kouki[1)], Itoh Takashi[1)], Nonomura Shuichi[1)], Sugimoto Kanta[2)], Yamada Akira[2)]

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2ThPo.91

CuInS2 THIN FILM GROWTH ON GLASS SUBSTRATE BY PLD METHOD

RAUL PAUCAR RAMOS[1)], RYO YOKOJIMA[1)], Hayime Shimada[1)], YONG-GU SHIM[2)], KAZUKI WAKITA[1)]

[1)] CHIBA INSTITUTE OF TECHNOLOGY, [2)] OSAKA PREFECTURE UNIVERSITY

2ThPo.92

Composition analysis and evaluation of CZTS films deposited by PLD

YUTA GOTO[1)], MASAHIRO KOTANI[1)], YONG-GU SHIM[2)], KAZUKI WAKITA[1)]

[1)] CHIBA INSTITUTE OF TECHNOLOGY, [2)] OSAKA PREFECTURE UNIVERSITY

2ThPo.93

SOLID-PHASE CRYSTALLIZATION OF DENSITY-CONTROLLED AMORPHOUS SI1-XGEX THIN FILMS ON GLASS

Daichi Takahara[1)], Kaoru Toko[1)], Ryota Yoshimine[1)], Takashi Suemasu[1)]

[1)] University of Tsukuba

2ThPo.94

ANNEALING EFFECT FOR SNS THIN FILMS PREPARED BY RF-MAGNETRON SPUTTERING

Donghyun Hwang[1)], Chang-Sik Son[1)]

[1)] Silla University

2ThPo.95

ANALYISIS OF CRYSTAL GROWTH AND DIFFUSION PROCESS IN CHALCOPYRITE PHOTOVOLTAIC MATERIALS

Takumi Kobayashi[1)], Takeshi Umehara[2)], Shigeru Yamada[1)], Kazuyoshi Nakada[1)], Akira Yamada[1)]

[1)] Department of Electrical and Electronic Engineering, Tokyo Institude of Technology, [2)] Department of Physical Electronics, Tokyo Institute of Technology

2ThPo.96

INFLUENCE OF Mo MICROSTRUCTURAL PROPERTIES ON THE FORMATION OF MoS2 THIN FILM IN SULPHURIZATION PROCESS

NOWSHAD AMIN[1,2)], P. Chelvanathan[2)], S. A. Shahahmadi[1)], Z. Zakaria[2)], Y. Yusof[1)], M. T. Ferdaous[1)], M. M.I. Sapeli[1)], M. Akhtaruzzman[2)], K. Sopian[2)]

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2ThPo.97

INFLUENCE OF TCO RESISTANCE IN CIGS THIN FILM SOLAR CELLS BY LUMINESCENCE METHOD

Tzu-Huan Cheng[1)], Shih-Hung Lin[2)]

[1)] LiveStrong Optoelectronics, [2)] Department of Electrical Engineering, Tunghai University

2ThPo.98

GROWTH OF CU(IN1-XGAX)SE2 MONOGRAIN POWDER CRYSTALS IN MOLTEN POTASSIUM IODIDE

Kristi Timmo[1)], Marit Kauk-Kuusik[1)], Maris Pilvet[1)], Jaan Raudoja[1)], Tiit Varema[1)], Mare Altosaar[1)], Maarja Grossberg[1)], Valdek Mikli[1)]

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2ThPo.99

INFLUENCE OF AIR ANNEALING ON CdS/Cu(In,Ga)Se2 MONOGRAIN LAYER SOLAR CELLS

Marit Kauk-Kuusik[1)], Kristi Timmo[1)], Maris Pilvet[1)], Maarja Grossberg[1)], Jri Krustok[1)], Kaia Ernits[2)]

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2ThPo.100

LIGHT-WEIGHT AND BENDABLE CDS/CDTE THIN-FILM SOLAR CELLS FOR SPACE APPLICATIONS

Jihyun Kim[1)], EunWoo Cho[1)], Donghwan Kim[2)], Gwangseok Yang[1)]

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2ThPo.101

CONCEPT OF BACK CONTACT IN CIGS SOLAR CELLS FOR HIGHER EFFICIENCY

Mikihiko Nishitani[1)], Takahiro Wada[2)]

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2ThPo.102

FABRICATION AND OPTIMIZATION OF VACUUM FREE HYBRID SOLAR CELLS PREPARED WITH COMPOSITES OF ZINC OXIDE NANOPARTICLES AND LOW BAND GAP POLYMER

Nguyen Tam Nguyen Truong[1)], Chinho Park[1)], Jae Hak Jung[1)]

[1)] Chemical Engineering Department, Yeungnam University

2ThPo.103

STUDY OF THE SEMICONDUCTING PROPERTIES OF Cu2ZnSnS4 (CZTS) ULTRATHIN FILMS GROWN BY ULTRASONIC SPRAY PYROLYSIS OF WATER-DISSOLVED PRECURSORS

Ignacio Estevez-Espinoza[1)], Yasuhiro Matsumoto[1,2)], Mauricio Ortega-López[1,2)]

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2ThPo.104

GROWTH AND CHARACTERIZATION OF COPPER ANTIMONY SULFIDE CRYSTALS

Manato Takeuchi[1)], Akira Nagaoka[2)], Shigeru Ikeda[3)], Kenji Yoshino[1)]

[1)] Department of Applied Physics and Electronic Engineering, University of Miyazaki, [2)] Kyoto University, [3)] Konan University

2ThPo.105

CRYSTALLOGRAPHIC, AND OPTICAL PROPERTIES OF CHALCOPYRITE-TYPE (Cu1-xAgx)InSe2 AND STANNITE-TYPE (Cu1-xAgx)In3Se5 AND (Cu1-xAgx)In5Se8 SYSTEMS

Tomoya Ishida[1)], Tsuyoshi Maeda[1)], Takahiro Wada[1)]

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2ThPo.106

EFFECT OF LOW-TEMPERATURE POST-DEPOSITION ANNEALING ON ELECTROCHEMICALLY DEPOSITED CUPROUS OXIDE THIN-FILMS

Yuki Takiguchi[1)], Aoi Orisaka[1)], Shinsuke Miyajima[1)]

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2ThPo.107

EVALUATION OF SrCuSeF AS A P-TYPE TCO FOR TUNNEL JUNCTION OF THIN FILM TANDEM SOLAR CELLS

Kazuyoshi Nakada[1)], Nana Chiwaki[1)], Kenji Miki[2)], Takahiro Wada[2)], Akira Yamada[1)]

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2ThPo.108

STRACTURAL CHARACTERIZATION T OF SN-S THIN FILMS DEPOSITED BY A THERMAL EVAPORATION METHOD

Yoji Akaki[1)], Kazuya Iwasaki[1)], Shigeyuki Nakamura[2)], Hideaki Araki[3)]

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2ThPo.109

EPITAXIAL GROWTH OF CIGS THIN LAYERS ON SINGLE CRYSTALLINE SUBSTRATES BY THREE-STAGE PROCESS

Jiro Nishinaga[1)], Takeyoshi Sugaya[1)]

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2ThPo.110

TEMPERATURE-DEPENDENT RAMAN SPECTROSCOPY ANALYSIS OF Cu2(Sn1-xGex)S3 THIN FILMS

Takayoshi Okamura[1)], Myo Than Htay[1,2)], Kohei Yamaguchi[1)], Noriyuki Urakami[1,2)], Noritaka Momose[3)], Kentaro Ito[1)], Yoshio Hashimoto[1,2)]

[1)] Department of Electrical and Computer Engineering, Shinshu University, [2)] ICST, [3)] NIT Nagano Coll.

2ThPo.111

INFLUENCE OF KF TREATMENT ON ELECTRONIC PROPERTIES OF CIGSSE SOLAR CELLS STUDIED BY

ADMITTANCE SPECTROSCOPY

Shenghao Wang[1)], Xia Hao[1)], Muhammad Monirul Islam[1)], Katsuhiro Akimoto[1)], Takuya Kato[2)], Hiroki Sugimoto[2)], Takeaki Sakurai[1)]

[1)] Institute of Applied Physics, University of Tsukuba, [2)] Atsugi Research Center, Solar Frontier K. K.

2ThPo.112

Variation with the deposition rate of cadmium sulfide for CIGS solar cell

Sung-Min Youn[1,2)], Dahye Jeong[1)], JinHyeok Kim[2)], Chaehwan Jeong[1)]

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2ThPo.113

EFFECT OF HYDRAZINE ON THE PROPERTIES OF ZINC SULFIDE BUFFER LAYER SYNTHESIZED BY CHEMICAL BATH DEPOSITION FOR SOLAR CELL APPLICATION

Jeha Kim[1)], Charan Lee[1)], Younbae Shin[1)], Vinaya kumar Arepalli[1)], Woo-jung Lee[2)], Yong-Duck Chung[2)]

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2ThPo.114

ANALYSIS OF FAST REACTION THIOACETAMIDE-ZnS BUFFER LAYER FOR CIGS THIN FILM SOLAR CELL

Jung Hoon Park[1)], Jeong Eun Park[2)], Taewoo Eom[1)], Sang Yong Park[1)], Jackson Bweupe[1)], Donggun Lim[1,2)]

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2ThPo.115

INFLUENCE OF ZnO:Al TRANSPARENT ELECTRODE USING RF MAGNETRON SPUTTERING ON CIGS THIN FILM SOLAR CELL

Taewoo Eom[1)], Jeong Eun Park[2)], Sang Yong Park[1)], Jung Hoon Park[1)], Jackson Bweupe[1)], Donggun Lim[1,2)]

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16:00-18:00 Room7+8+9 Area3

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FABRICATION OF INGAP SOLAR CELLS WITH HYDRIDE VAPOR PHASE EPITAXY

Kikuo Makita[1)], Ryuzi Oshima[1)], Akinori Ubukata[2)], Takeyoshi Sugaya[1)]

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3ThPo.117

ANNEALING EFFECTS ON GAAS/ITO/SI JUNCTIONS FABRICATED BY SURFACE- ACTIVATED BONDING

Tomoya Hara[1)], Tomoki Ogawa[1)], Jianbo Liang[1)], Kenji Araki[2)], Takefumi Kamioka[2)], Naoteru Shigekawa[1)]

[1)] Graduate School of Engineering, Osaka City University, [2)] Toyota Technological Insitute

3ThPo.118

OPTIMIZATION OF STATIC CPV FOR THE CAR-ROOF FOR MAXIMIZING SOLAR RESOURCES INCLUDING THE DIFFSED SUNLIGHT.

Taizo Masuda[1)], Kenji Araki[2)], Kan-Hua Lee[2)], Yasuyuki Ota[3)], Kensuke Nishioka[3)], Masafumi Yamaguchi[2)]

[1)] Toyota Motor Corporation, [2)] Toyota Technological Institute, [3)] University of Miyazaki

3ThPo.119

PROTOTYPE CONSTRUCTION, SIMULATION AND EVALUATION OF A SOLAR CPV-T HYBRID RECEIVER

Robert Hller[1)], Georg Stramair[1)], Robert Reinbrach[1)], Bernhard Kapeller[1)], Daniel Chemisana[2)]

[1)] Sustainable Energy Systems, University of Applied Science Upper Austria, [2)] University of Lleida

3ThPo.120

EVALUATION AND OPTIMIZATION OF WIDE ACCEPTANCE ANGLE CONCENTRATOR PHOTOVOLTAIC MODULE

Nawwar Ahmad[1)], Yasuyuki Ota[1)], Kenji Araki[2)], Kan-Hua Lee[2)], Masafumi Yamaguchi[2)], Kensuke Nishioka[1)]

[1)] Department of materials and informatics, University of Miyazaki, [2)] Toyota Technological Institute

3ThPo.121

QUANTITATIVE EVALUATION OF THERMAL RUNAWAY TOLERANCE IN SPACE SOLAR CELLS

Tetsuya Nakamura[1)], Taishi Sumita[1)], Mitsuru Imaizumi[1)]

[1)] Japan Aerospace Exploration Agency

3ThPo.122

STANDARDIZATION OF LOW-CONCENTRATION PHOTOVOLTAICS—TECHNICAL TERMS AND TESTING CONDITIONS

Kan-Hua Lee[1)], Kensuke Nishioka[2)], Kenji Araki[1)], Masafumi Yamaguchi[1)]

[1)] Toyota Technological Institute, [2)] University of Miyazaki

3ThPo.123

OPTIMIZATION OF SI BOTTOM SUBCELL FOR III-V ON SI WAFER BONDED MULTIJUNCTION SOLAR CELLS

Laura Vauche[1,2)], Elias Veinberg-Vidal[1,2)], Thibaut Desrues[1,3)], Marianne Coig[1,2)], Fréderic Milesi[1,2)], Vincent Rebeyrol[1,2)], Christophe Jany[1,2)], Pierre Mur[1,2)]

[1)] Univ. Grenoble Alpes, [2)] CEA LETI, [3)] CEA LITEN, INES

3ThPo.124

EFFICIENCY ENHANCEMENT OF InGaAs LASER CELL FOR 1080 nm LASER-BASED WIRELESS POWER TRANSMISSION OF UNMANNED AERIAL VEHICLE

Sang Hyun Jung[1)], Chang Zoo Kim[1)], Youngjo Kim[1)], Kangho Kim[1)], Hyun-Beom Shin[1)], Ho Kwan Kang[1)]

[1)] Korea Advanced Nano Fab Center

3ThPo.125

INVESTIGATE THE UNIFORMITY OF CONCENTRATED PV USING PRISMATIC STRUCTURE

Sheng-Hui Chen[1)], Ying-Tse Li[1)], Gui-Sheng Zeng[1)]

[1)] Department of Optics and Photonics, National Central University

3ThPo.126

RELIABILITY AND OUTDOOR PERFORMACE OF MICRO-CPV SYSTEM

Hwen-fen Hong[1)], Kai-Hsiang Yang[1)], Jia-Ruei Chang[1)], Chun-Yi Chen[1)], Zun-Hao Shih[1)], Yueh-Mu Lee[1)], Chen-Yen Fan,[1)]

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3ThPo.127

DUAL-JUNCTION GAAS PV CELLS FOR SMART STACKED MULTIJUNCTION SOLAR CELLS

Takeyoshi Sugaya[1)], Takeshi Tayagaki[1)], Kikuo Makita[1)], Ryuji Oshima[1)]

[1)] National Institute of Advanced Industrial Science and Technology (AIST)

3ThPo.128

FABRICATION AND TEST OF III-V/SI LATERAL HYBRID PHOTOVOLTAIC MODULE

Akihiro Abe[1)], Daisuke Sato[1)], Masaaki Baba[1)], Kan-Hua Lee[2)], Kenji Araki[2)], Masafumi Yamaguchi[2)], Noboru Yamada[1)]

[1)] Department of Mechanical Engineering, Nagaoka University of Technology, [2)] Toyota Technological Institute

3ThPo.129

52.7% CONVERSION EFFICIENCY OF SINGLE-JUNCTION GAAS SOLAR CELL FOR OPTICAL WIRELESS POWER TRANSMISSION USING LASER DIODE

Ryota Jomen[1)], Fumiaki Tanaka[1)], Toshiki Akiba[1)], Mitsutaka Ikeda[1)], Kosei Kiryu[1)], Mikiya Matsushita[1)], Hiroyasu Maenaka[1)], Pan Dai[2)], Shulong Lu[2)], Shiro Uchida[1)]

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3ThPo.130

IMPROVEMENT OF EFFICIENCY FOR 4-JUNCTION SOLAR CELL UNDER REAL SUNLIGHT

Hideo Teramoto[1)], Yoshiaki Ajima[1)], Yamato Kaneko[1)], Yuki Nakamura[1)], Ryota Jomen[1)], Pan Dai[2)], Shulong Lu[2)], Shiro Uchida[1)]

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3ThPo.131

REDUCED-LAYER-THICKNESS DESIGN OF INGAP/GAAS/INGAAS SOLAR CELLS USING LIGHT-TRAPPING TEXTURE MIRROR

Lin Zhu[1,2)], Anurag Reddy[3)], Kentaroh Watanabe[3)], Masakazu Sugiyama[3)], Yoshiaki Nakano[3)], Hidefumi Akiyama[1,2)]

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3ThPo.132

Ge CHEMICAL VAPOR DEPOSITION USING t-C4H9GeH4 FOR MULTIJUNCTION SOLAR CELLS

Tomohiko Hara[1)], Ryota Katayama[1)], Nobuaki Kojima[1)], Yoshio Ohshita[1)]

[1)] Advanced Science and Technology, Toyota Technological Institute

Thursday, November 16
16:00-18:00 Room7+8+9 **Area4**

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PUSH-COATING: EXTREMELY LOW-COST AND ECO-FRIENDLY PROCESS FOR POLYMER SOLAR CELL FABRICATION

shusei Inaba[1)], Varun Vohra[1)]

[1)] Department of Basic Science and Engineering, University of Electro-Communications

4ThPo.134

OUTPUT AND TRANSMITTED RADIATION EVALUATION OF ORGANIC PHOTOVOLTAIC MODULE WITH COMBINED FUNCTIONS

Hirata Youichi[1)], Iino Taichi[1)], Noboru Ohashi[1)], Yasuyuki Watanabe[1)], Cheng-Yeh Yu[1)]

[1)] Faculty of Engineering, Tokyo University of Science, SUWA

4ThPo.135

IDENTIFICATION OF MOLECULAR ORIENTATION IN BULK HETEROJUNCTION LAYER BY INFRARED REFLECTION ABSORPTION SPECTROSCOPY

Tatsuki Chikamatsu[1)], Tetsuya Taima[1,2,3)], Kohshin Takahashi[1,2)], Takayuki Kuwabara[1,2)], Makoto Karakawa[1,2,3)], Kohei Yamamoto[1)], Md. Shahiduzzaman[3)]

[1)] Graduate School of Natural Science and Technology, Kanazawa University, [2)] Research Center for Sustainable Energy and Technology (RSET), Kanazawa University, [3)] Institute for Frontier Science Initiative (InFiniti), Kanazawa University

4ThPo.136

EFFECT OF SOLVENT VAPOR ANNEALING ON ORGANIC PHOTOVOLTAICS WITH A NEW TYPE OF SOLUTION-PROCESSABLE OLIGOTHIOPHENE-BASED ELECTRONIC DONOR MATERIAL

Yuki Akiyama[1,2)], Hiroaki Tachibana[2)], Reiko Azumi[2)], Tetsuhiko Miyadera[2)], Masayuki Chikamatsu[2)], Tomoyuki Koganezawa[3)], Shuhei Yagi[1)], Hiroyuki Yaguchi[1)]

[1)] Saitama University, [2)] National Institute of Advanced Industrial Science and Technology (AIST), [3)] Japan Synchrotron Radiation Research Institute (JASRI)

4ThPo.137

a-DIKETONE-TYPE PHOTOPRECURSORS OF MOLECULAR P-TYPE SEMICONSUCTORS: APPLICATION IN ORGANIC PHOTOVPLTAICS AND EVALUATION OF SUBSTITUENT IMPACT

Hiroko Yamada[1)], Naoto Nagami[1)], Kengo Terai[1)], Mitsuharu Suzuki[1)]

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4ThPo.138

SINGLE CRYSTAL ORGANIC PHOTOVOLTAIC CELLS USING LATERAL ELECTRON TRANSPORT

Mitsuru Kikuchi[1,3)], Kenichiro Takagi[2)], Hiroyoshi Naito[2,3)], Masahiro Hiramoto[1,3)]

[1)] Institute for Molecular Science, [2)] Osaka Prefecture University, [3)] NEDO

4ThPo.139

HOLE- AND ELECTRON-ONLY TRANSPORT IN RATIO-CONTROLLED ORGANIC CO- DEPOSITED FILMS OBSERVED BY IMPEDANCE SPECTROSCOPY

Naoto Shintaku[1,2,4)], Seiichiro Izawa[1,2)], Kennichiro Takagi[3,4)], Hiroyoshi Naito[3,4)], Masahiro Hiramoto[1,2,4)]

[1)] SOKENDAI (The Graduate University for Advanced Studies), [2)] Instisute for Molecular Science, [4)] NEDO

4ThPo.140

LIGHTWAVE MANIPULATION IN ORGANIC SOLAR CELLS BY INTEGRATING MULTIPLE OPTICAL NANOPATTERNS WITH VARIOUS PATTERN PITCH

Soo Won Heo[1)], Keisuke Tajima[1,2)]

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4ThPo.141

MODULATING ORBITAL ENERGY LEVELS OF TETRABENZOPORPHYRIN TOWARD HIGH-PERFORMANCE ORGANIC SOLAR CELLS

Eunjeong Jeong[1)], Kohtaro Takahashi[1)], Mitsuharu Suzuki[1)], Hiroko Yamada[1)]

[1)] Graduate School of Materials Science, Nara Institute of Science and Technology

4ThPo.142

DETERMINATION OF BIMOLECULAR RECOMBINATION COEFFICIENTS IN BULK HETEROJUNCTION SOLAR CELLS BY MEANS OF IMPEDANCE SPECTROSCOPY

Tatsuya Nunobiki[1)], Makoto Takada[1)], Takashi Nagase[1,2)], Takashi Kobayashi[1,2)], Naito Hiroyoshi[1,2)]

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4ThPo.143

REAL-TIME X-RAY DIFFRACTION ANALYSIS FOR SOLVENT VAPOR ANNEALING PROCESS OF SMALL-MOLECULE/ FULLERENE FILMS

Tetsuhiko Miyadera[1)], K. Arai[1,2)], T. Koganezawa[3)], Y. Akiyama[1,2)], H. Tachibana[1)], Y. Yoshida[1)], M. Chikamatsu[1)], S. Yagi[2)], H. Yaguchi[2)]

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4ThPo.144

AGRICULTURAL SENSOR SYSTEM USING SEE-THROUGH ORGANIC THIN FILM SOLAR MODULES

Noboru Ohashi[1)], Wakana Tsutsumi[2)], Masayuki Chikamatsu[2)], Yuji Yoshida[2)], Yasuyuki Watanabe[1)]

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4ThPo.145

ORGANIC SOLLER CELLS USING N-TYPE ORGANIC SEMICONDUCTORS WITH A PHOTOCONVERTIBLE UNIT

Masaki Yamato[1,2,4)], Kazuki Kawajiri[3)], Takahiro Kawanoue[3)], Yuji Yamaguchi[1,2)], Mitsuharu Suzuki[3)], Hiroko Yamada[3)], Ken-ichi Nakayama[1,2,4)]

[1)] Department of Organic Materials Science, Yamagata University, [2)] Research Center for Organic Electronics, Yamagata University, [3)] Graduate School of Materials Science, Nara Institute of Science and Technology, [4)] Department of Material and Life Science, Osaka University

4ThPo.146

IMPS/IMVS MEASUREMENT IN THIN-FILM ORGANIC SOLAR CELLS

Kazuhiro Tanaka[1,2)], Tatsuya Okura[1)], Chiho Katagiri[1,2)], Tsukasa Yoshida[1)], Ken-ichi Nakayama[1,2)]

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4ThPo.147

EPITAXIAL GROWTH OF C60 ON ORGANIC SINGLE CRYSTAL SUBSTRATES

Ryohei Tsuruta[1)], Yuta Togami[1)], Kento Imai[1)], Yuta Mizuno[2)], Soichiro Yamanaka[1)], Koki Yoshida[1)], Toshiaki Mori[1)], Tomoyuki Koganezawa[3)], Takuya Hosokai[4)], Yasuo Nakayama[1)]

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4ThPo.148

POLYOL - MEDIATED SYNTHESIS OF HIERARCHICAL Cu2ZnSnSe4 (CZTSe) NANOPARTICLES FOR LOW- COST SOLAR CELLS

Sridharan Moorthy Babu[1)], Charles Imala Mary[1)], Soosaimanickam Ananthakumar[1)], Muthu Senthilkumar[1)]

[1)] Crystal Growth Centre, Anna University

4ThPo.149

COLORFUL POLYMER SOLAR CELLS EMPLOYING ENERGY TRANSFER DYE MOLECULE

Jaemin Kong[1)], Megan Mohadjer Beromi[2)], Marina Mariano[1)], Teng Hooi Goh[1)], Francisco Antonio[1)], Nilay Hazari[2)], Andre Taylor[1)]

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Thursday, November 16
16:00-18:00 Room7+8+9 Area5

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HIGH EFFICIENCY METHYL AMMONIUM LEAD HALIDE PEROVSKITE SOLAR CELL WITH LOW DEFECTS

Sk Md Iftiquar[1)], Junhee Jung[2)], Junsin Yi[1)]

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5ThPo.151

EFFECT OF TIO2 ELECTRON TRANSPORT LAYERS IN PEROVSKITE SOLAR CELLS

Naoki Ueoka[1)], Takeo Oku[1)], Atsushi Suzuki[1)], Hiroki Sakamoto[3)], Masahiro Yamada[3)], Satoshi Minami[4)], Shinsuke Miyauchi[4)], Shinichiro Tsukada[4)]

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PHOTOVLTAIC PEROFORMANCE OF PEROVSKITE SOLAR CELLS DOPED WITH CS

Naoki Ueoka[1)], Takeo Oku[1)], Atsushi Suzuki[1)]

[1)] Department of Materials Science, The University of Shiga Prefecture

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LIGHT AND ELECTRIC FIELD INDUCED DEGRADATION OF PEROVSKITE SOLAR CELLS

Soohyun Bae[1)], Sang-Won Lee[1)], Kyung Jin Cho[1)], Jae Keun Hwang[1)], Yoonmook Kang[1)], Hae-Seok Lee[1)], Donghwan Kim[1)]

[1)] Korea University

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RESEARCH ON THE OPTICAL AND ELECTRICAL CHARACTERISTICS OF SOLUTION- PROCESSED TIO2 LAYER FOR THE APPLICATION OF PEROVSKITE SOLAR CELLS

JungYup Yang[1)], Wooil Jung[1)], Hyunmo Koo[1)], Jungseok Oh[1)]

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EFFECT OF TIO2-PHOTOELECTODES COMPOSITION ON THE PERFORMANCE OF PEROVSKITE SOLAR CELLS UNDER LOW LIGHT INTENSITY CONDITIONS

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RELIABILITY EVALUATION OF PEROSKITE SOLAR CELLS BY LUMINESCENCE METHOD

Tzu-Huan Cheng[1)], Shih-Hung Lin[2)], Sheng-Hsiung Yang[3)]

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RESEARCH ON CARRIER TRANSPORT LAYERS OF METAL OXIDE SEMICONDUCTORS FOR PEROVSKITE SOLAR CELLS

JungYup Yang[1)], Wooil Jung[1)], Hyunmo Koo[1)], JungSeok Oh[1)], Dukjoon Cha[1)], Soohyun Bae[2)], Sangwon Lee[2)], Yoonmook Kang[3)]

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EFFECTS OF ELEMENT ADDITION TO CH3NH3PBI3 PHOTOVOLTAIC DEVICES

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Hydrogenated TiO2 Thin Film for Accelerating Electron Transportation in Planar Perovskite Solar Cells

Xin Yao[1,2)], Junhui Liang[1,2)], Yi Ding[1,2)], Ying Zhao[1,2)], Xiaodan Zhang[1,2)], Biao Shi[1,2)], Di Liu[1,2)], Lin Fan[1,2)], Shanzhen Zhao[1,2)], Changchun Wei[1,2)], Dekun Zhang[1,2)], Baozhang Li[1,2)]

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Efficiency Increasing in Inverted Perovskite Solar Cells by TiCl4 Surface Treatment of (Ni,Li)O Hall Transport Layers

Takashi Nishihara[1)], Shinya Fujimura), Michio Suzuka[1)], Takayuki Negami[1)]

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SEVERE MORPHOLOGICAL DEFORMATION OF SPIRO-OMETAD IN PEROVSKITE SOLAR CELLS AT HIGH TEMPERATURE: CAUSES AND CONSEQUENCES

Ajay Kumar Jena[1)], Masashi Ikegami[1)], Tsutomu Miyasaka[1)]

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APPLICATION OF SrCuSeF AND ITO BILAYER OHMIC TUNNEL JUNCTION AS HOLE TRANSPORT LAYER FOR PEROVSKITE SOLAR CELLS

Jingo Tsuji[1)], Kenji Miki[1)], Kako Kawakita[1)], Atsumi Kinoshita[1)], Takahiro Wada[1)], Yoshifumi Aoi[1)]

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CHARGE TRAPS IN LEAD-HALIDE PEROVSKITES WITH DIFFERENT GRAIN SIZES

HYUNG DO KIM[1)], Yasunari Tamai[1)], Hideo Ohkita[1)]

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NOVEL HOLE TRANSPORT MATERIALS WITH TETRATHIAFULVALENE CORE FOR EFFICIENT PEROVSKITE SOLAR CELLS

Ryuji Kaneko[1,2)], Guohua Wu[2)], Kosuke Sugawa[2)], Ashraful Islam[1)], Joe Otsuki[2)]

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TRIPHENYLAMINE DERIVATIVES FOR INTERFACE BETWEEN PEROVSKITE AND HOLE TRANSPORT MATERIAL IN PEROVSKITE SOLAR CELLS

Takashi Funaki[1)], Nobuko Onozawa-Komatsuzaki[1)], Takurou N. Murakami[1)], Masayuki Chikamatsu[1)]

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TIN OXIDE ELECTRON-TRANSPORT LAYER PREPARED BY SPRAY PYROLYSIS FOR HYSTERESIS-LESS ORGANO-METAL-HALIDE PEROVSKITE SOLAR CELLS

Hsin-Wei Chen[1)], Takeru Bessho[2)], Zeguo Tang[2)], Hiroshi Segawa[1,2)]

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FABRICATION OF EFFICIENT PEROVSKITE SOLAR CELLS USING A COMPLEX OF CH3NH3PBI3(DMF) AS A KEY PRECURSOR BY A SOLUTION PROCESS

Masashi Ozaki[1)], Alwani Rafieh[1)], Naoki Maruyama[1)], Ai Shimazaki[1)], Mina Jung[1)], Yumi Nakaike[1)], Tomoko Aharen[1)], Takahiro Sasamori[1)], Norihiro Tokitoh[1)], Yasujiro Murata[1)], Atsushi Wakamiya[1)]

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THE ELECTRICAL AND OPTICAL CHARACTERIZATIONS OF CH3NH3PBI3-XCLX FILMS BY VACUUM EVAPORATION

Yuki Sakurai[1)], Akira Nakanishi[1)], Shinsuke Miyajima[1)]

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ECO-FRIENDLY BISMUTH HALIDE, AG-BI AND CU-BI BASED LIGHT ABSORBING MATERIALS FOR LEAD FREE PEROVSKITE SOLAR CELLS

Ashish Kulkarni[1)], Masashi Ikegami[1)], Tsutomu Miyasaka[1)]

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IMPROVEMENT IN THE ELECTRICAL PROPERTIES OF PEROVSKITE SOLAR CELL WITH A MESOPOROUS ALUMINA INTERLAYER BETWEEN HTL AND ETL

Seiya Sakakibara[1)], Tetsuya Kaneko[1)], Masao Isomura[1)]

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All Low temperature (< 150oC) processed high efficiency and stable flexible perovskite solar cells

Trilok Singh[1)], Masashi Ikegami[1)], Tsutomu Miyasaka[1)]

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Substrate Effect on Ultra-Thin Hydrogenated Amorphous Silicon Solar Cells

Jia Fang[1,2,3,4)], Baojie Yan[1,2,3,4)], Tiantian Li[1,2,3,4)], Ying Zhao[1,2,3,4)], Xiaodan Zhang[1,2,3,4)], Baojie Yan[1,2,3,4)], Changchun Wei[1,2,3,4)], DekunZhang[1,2,3,4)], Baozhang Li[1,2,3,4)], Qian Huang[1,2,3,4)], Xinliang Chen[1,2,3,4)], Guangcai Wang[1,2,3,4)]

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BAND GAP ENGINEERING OF LEAD-FREE PEROVSKITES WITH SOLVENTS

Sridharan Moorthy Babu[1)], M. Pandiyarajan[1)], G. Mano Balaji[1)], Subashchandran Shanthi[1)]

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FABRICATION AND CHARACTERIZATION OF PEROVSKITE-TYPE SOLAR CELLS ADDED WITH POLYSILANES

Junya Nomura[1)], Takeo Oku[1)], Atushi Suzuki[1)], Sakiko Fukunishi[2)], Satoshi Minami[2)], Shinichiro Tsukada[2)]

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ACCELERATED LIFETIME TESTING OF ORGANIC-INORGANIC PEROVSKITE SOLAR CELLS ENCAPSULATED BY LOW COST POLYISOBUTYLENE BASED POLYMER

Lei Shi[1)], Mark Keevers[1)], Xiaojing Hao[1)], Anita Ho-Baillie[1)], Trevor Young[1)], Martin Green[1)]

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EFFECTS OF CATIONIC SURFACTANTS ADDITION TO CH3NH3PBI3 SOLAR CELLS

Junya Nomura[1)], Yuya Ohishi[1)], Atsushi Suzuki[1)], Takeo Oku[1)]

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LIGHT MANAGEMENT FOILS FOR BOOSTING PEROVSKITE

SOLAR CELL PERFORMANCE

Marko JOST[1,2], Steve ALBRECHT[2], Benjamin LIPOVSEK[1], Janez KRC[1], Lars KORTE[3], Bernd RECH[3], Marko TOPIC[1]

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INFLUENCE OF CHARGE TRANSPORT AND DEFECTS ON THE PERFORMANCE OF MESOSTRUCTURED AND PLANAR PEROVSKITE SOLAR CELLS

Miloš Petrović [1,2], Ye Tao[1], Vijila Chellapan[2], Seeram Ramakrishna[1]

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SILICON PHOTOVOLTAIC CELLS COUPLED WITH SOLAR-PUMPED LASERS

Noboru Yamada[1], Tadashi Ito[1], Yasuhiko Takeda[1], Hiroshi Ito[2], Tomoyoshi Motohiro[2]

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Half-Gaussian Distributed Bragg Reflector for back reflection in solar cells

Tsong-Sheng Lay[1], Chen-Yi Su[1]

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STRUCTURAL AND OPTICAL ANALYSIS OF SPUTTERED BASI2 THIN FILM

Miro Zeman[1], Yilei Tian[1], Robin Vismara[1], Steve van Dooren[1], Pavol Šutta[2], Ľubomír Vančo[3], Marian Veselý[3], Peter Vogrinčič[3], Olindo Isabella[1]

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OPTICAL TRANSITION AND CARRIER TRANSPORT IN TYPE-II HETEROSTRUCTURES OF HIGHLY DENSE InAs QUANTUM DOTS ON GaAsSb/GaAs

Ryosuke Suzuki[1], Ryo Sugiyama[1], Tomah Sogabe[2], Koichi Yamaguchi[1]

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TWO-STEP PHOTO-EXCITATED ELECTRONS WITH EXTREMELY-LONG LIFETIME IN INTERMEDIATE-BAND SOLAR CELLS USING DOT-IN-WELL STRUCTURE

Shigeo Asahi[1], Haruyuki Teranishi[1], Toshiyuki Kaizu[1], Takashi Kita[1]

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LIGHT INTERFERENCE INTEGRATED DEVICE SIMULATION IN THIN FILM InAs/GaAs QUANTUM DOT SOLAR CELL

Tomah Sogabe[1,2], Mitsuki Mori[3], Katsuyoshi Sakamoto[2], Koichi Yamaguchi[2], Yoshitaka Okada[3]

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OVERCOMING THE POOR SHORT WAVELENGTH SPECTRAL RESPONSE OF SILICON NANOWIRE SOLAR CELLS VIA PHOSPHORESENCT ENERGY DOWNSHIFTING

Kangmin Lee[1], Hyun-Tak Kim[2], Wonjoo Jin[1], Tae-Hyuk Kwon[2], Kwanyong Seo[1]

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FIRST-PRINCIPLES STUDY OF OPTICAL TRANSITIONS IN GALLIUM ARSENIDE:NITROGEN DELTA-DOPED SUPERLATTICES

Hiroki Yoshikawa[1], Shuhei Yagi[1], Hiroyuki Yaguchi[1]

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DEVELOPMENT OF PREFERRED ORIENTATION IN EVAPORATED BASI2 FILMS ON SI(100) BY CONTROLLING THE NEAR-INTERFACE STRUCTURE

Kosuke O. Hara[1], Chiaya Yamamoto[1], Junji Yamanaka[1], Keisuke Arimoto[1], Kiyokazu Nakagawa[1], Noritaka Usami[2]

[1] University of Yamanashi, [2] Nagoya University

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POLYCRYSTALLINE BASI2 THIN FILMS FORMED BY PULSED LAYER DEPOSITION FOR SOLAR CELLS APPLICATION

Weijie Du[1)], Rui Du[1)], Guoliang Ma[1)], Yiwen Zhang[1)], Takashi Suemasu[2)]

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INFLUENCE OF NITROGEN ATOMIC ARRANGEMENT IN GAASN ALLOYS ON BAND GAP ENERGY

Kazuki Miyajima[1)], Shuhei Yagi[1)], Yasushi Shoji[2)], Yoshitaka Okada[2)], Hiroyuki Yaguchi[1)]

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DRIFT-DIFFUSION ANALYSIS ON QUANTUM EFFICIENCY OF QUANTUM-DOT INTERMEDIATE-BAND SOLAR CELLS

Katsuhisa Yoshida[1)], Yoshitaka Okada[1)]

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RISKS AND OPPORTUNITIES IN CHALLENGING NEW BANDGAP MATERIALS FOR INCREASING NUMBER OF JUNCTIONS – PROBABILITY STUDY

Kenji Araki[1)], Kan-Hua Lee[1)], Masafumi Yamaguchi[1)]

[1)] Toyota Technological Institute

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INFLUENCE OF BARRIER LAYER'S HEIGHT ON THE PERFORMANCE OF Si QUANTUM DOTS SOLAR CELLS

Kouhei Kitazawa[1)], Ryushiro Akaishi[1)], Satoshi Ono[1)], Isao Takahashi[1)], Noritaka Usami[1)], Yasuyoshi Kurokawa[1)]

[1)] Graduate School of Engineering, Nagoya University

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DEVICE DESIGNS AND CHARACTERIZATION OF INGAP-BASED INP QUANTUM DOT SOLAR CELLS

Taketo Aihara[1)], Takeshi Tayagaki[1)], Yuki Nagato[2)], Yoshinobu Okano[2)], Takeyoshi Sugaya[1)]

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FABRICATION OF LIGHT TRAPPING STRUCTURE BY SELECTIVE ETCHING OF THIN Si SUBSTRATES MASKED WITH A Ge DOTS LAYER

Atsushi Hombe[1)], Yasuyoshi Kurokawa[1)], Seimei Akagi[2)], Yuzo Yamamoto[2)], Dmitry Yurasov[3)], Alexey Novikov[3)], Noritaka Usami[1)]

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ELECTRICAL CHARACTERIZATION OF Cl-DOPED ZnTeO-BASED INTERMEDIATE BAND SOLAR CELLS

Kento Matsuo[1)], Shuji Tsutsumi[1)], Tooru Tanaka[1)], Katsuhiko Saito[1)], Qixin Guo[1)], Kin Man Yu[2)], Wladek Walukiewicz[3,4)]

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MULTI-PROPERTY AND MULTI-SCALE COMPUTATIONAL MATERIAL OPTIMIZATION OF SOLAR CELL DEVICE

Ahmer AB Baloch[1)], H. Al Salman[2)], M. I. Hossain[1)], F. El-Mellouhi[1)], N. Tabet[1)], F. Alharbi[1)]

[1)] Hamad bin Khalifa University, [2)] King Abdul-Aziz City for Science & Technology

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SYNTHESIS OF GRAPHENE ON SILICON DIRECTLY AT LOW TEMPERATURE FOR SCHOTTKY JUNCTION SOLAR CELLS

Sudip Adhikari[1)], Rupesh Singh[1)], Hideo Uchida[1)], Mikio Yasubayashi[1)], Masayoshi Umeno[1)]

[1)] Chubu University

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CHARACTERIZATION OF GASB QUANTUM DOT SOLAR CELLS BY CAPACITANCE MEASUREMENTS

Takeshi Noda[1)], Martin Elborg[1)], Takaaki Mano[1)], Takuya Kawazu[1)]

[1)] National Institute for Materials Science

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HETEROJUNCTION CARBON BASED SOLAR CELLS

Hideo Uchida[1)], Sudip Adhikari[1)], Masayoshi Umeno[1)]

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NON-DESTRUCTIVE HOMOGENEITY MAPPING OF ETHYLENE VINYL ACETATE CROSSLINK DEGREE IN COOPER INDIUM GALLIUM SELENIDE MODULE

Chin Lien[1)], Cho-Fan Hsieh[1)], Hung-Sen Wu[1)], Teng-Chun Wu[1)]

[1)] Photovolatic Metriligy Laboratory, Center for Measurement Standard, Industrial Technology Research Institute

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MEAN SURFACE-PRESSURE PATTERN ON PHOTOVOLTAIC MODULE FOR NON- UNIFORM DYNAMIC MECHANICAL LOAD TEST

Shu-Tsung Hsu[1)], Hung-Sen Wu[1)], Chin Lien[1)]

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STRESS-FREE INTERCONNECTION OF CRYSTALLINE SILICON SOLAR CELLS

Dong-Youn Shin[1)], Hae Wook Chung[1)], Hyung-Jun Song[2)], Jeong In Lee[2)]

[1)] Department of Graphic Arts Engineering, Pukyong National University, [2)] Korea Institute of Energy Research

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INVESTIGATION AND ESTIMATION OF UV IRRADIATION DOSAGE TO BACK SIDE OF RACK MOUNTED PHOTOVOLTAIC MODULES

Yoshiyuki Kobayashi[1)], Hideyuki Morita[1)], Kentaro Mori[1)], Atsushi Masuda[2)]

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EXPLORING PID TESTING PROCEDURES OF CIGS PV MODULES

Keiichiro Sakurai[1)], Hiroshi Tomita[2)], Darshan Schmitz[2)], Shuuji Tokuda[2)], Kinichi Ogawa[1)], Hajime Shibata[1)], Atsushi Masuda[1)]

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DEGRADATION ANALYSIS OF MONOCRYSTALLINE-SILICON PHTOTOVOLTAIC MODULES EXPOSED OVER 22 YEARS IN A HOT-HUMIDITY ENVIRONMENT

Huili Han[1,2)], Xian Dong[2)], Haiwen Lai[1)], Bingzhi Li[1)], Huan Yan[1)], Kai Zhang[2)], Hui Shen[1)],

[1)] Sun Yat-Sen University, China, [2)] ShunDe SYSU Institute for Solar Energy, China

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ANALYSIS OF MICRO-CRACKS AND DELAMINATION OF 10-YEAR AGED PV MODULES IN HOT-HUMID REGION

Xian Dong[1)], Zhouhua Wu[2)], Yan He[2)], Kai Zhang[1)], Hui Shen[2)]

[1)] ShunDe SYSU Institute for Solar Energy, [2)] Sun Yat-Sen University

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LIFETIME IMPROVEMENT OF TIN FILM SENSOR FOR DETECTING ACETIC ACID PRODUCED IN PHOTOVOLTAIC MODULES

Ryo Hamaoka[1)], Tomohiro Itayama[1)], Hideaki Nagasaki[1)], Kentarou Iwami[1)], Satoru Takemoto[1)], Chizuko Yamamoto[2)], Yukiko Hara[2)], Atsushi Masuda[2)], Norihiro Umeda[1)]

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POTENTIAL-INDUCED DEGRADATION IN N-TYPE C-SI PHOTOVOLTAIC MODULES BY OUTDOOR EXPOSURE

Minoru Akitomi[1)], Kohjiro Hara[1)], Yasuo Chiba[1)], Atsushi Masuda[1)]

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EFFECTS OF HYGROTHERMAL ENVIRONMENT ON PID ACCELERATION FOR CRYSTALLINE SILICON PHOTOVOLTAIC MODULES

Yasushi Tachibana[1)], Takeshi Toyoda[1)], Toshiharu Minamikawa[1)], Yukiko Hara[2)], Atsushi Masuda[2)]

[1)] Industrial Research Institute of Ishikawa, [2)] National Institute of Advanced Industrial Science and Technology

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INFLUENCE OF ENVIRONMENTAL STRESS FACTORS INCLUDING LIGHT IRRADIATION ON PHOTOVOLTAIC MODULE DEGRADATION

Tomoko Aoki[1)], Yukiko Hara[1)], Atsushi Masuda[1)]

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BUSBAR CURRENT ESTIMATION OF PV MODULE USING

MAGNETIC SENSOR

Kenta Onohara[1)], Marjila Burhanzoi[1)], Teppei Noguchi[1)], Tomoaki Ikegami[1)], Shinji Kawai[2)]

[1)] Kumamoto University, [2)] Industrial Technology Research Center of SAGA

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PV MODULE DIAGNOSIS BY MEASURING MAGNETIC FLUX DENSITY ON THE MODULE SURFACE

Marjila Burhanzoi[1)], Kenta Onohara[1)], Fumiaki Mitsugi[1)], Tomoaki Ikegami[1)], Shinji Kawai[2)]

[1)] Kumamoto University, [2)] Industrial Technology Research Center of SAGA

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MAXIMIZING MODULE RELIABILITY PERFORMANCE WITH POLYOLEFIN ENCAPSULANTS

Wayne Ma[1)]

[1)] Dow Chemical (China) Investment Company

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THE PERFORMANCE ANALYSIS OF FIELD EXPOSURE AND DAMP HEAT TEST FOR FLEXIBLE CIGS PHOTOVOLTAIC MODULE

Hyun-A Kim[1)], Jehyun Baeg[1)], Sunmook Lee[1)]

[1)] Korea Conformity Laboratories

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MEASURING ACETIC ACID TRANSMISSION RATES OF PV BACKSHEETS

Gernot Oreski[1)], Antonia Mihaljevic[1)], Gabriele C. Eder[2)], Yuliya Voronko[2)]

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AN ANALYSIS ON CURRENT FLOW AND THERMAL CHARACTERISTIC OF PV MODULE WITH DAMAGED BYPASS DIODE

Woo Gyun Shin[1)], Suk Hwan Go[1)], Young Chul Ju[1)], Hyung Jun Song[1)], Gi Hwan Kang[1)]

[1)] Photovoltaic Laboratory, Korea Institute of Energy Research

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CELL STRING-FREE CONDUCTIVE PASTE BASED SOLDERING FOR C-SI PV MODULE ASSEMBLING

Hyung-Jun Song[1)], Woo Gyun Shin[1)], Young Chul Ju[1)], Suk Hwan Go[1)], Hee-eun Song[1)], Gi Hwan Kang[1)]

[1)] Photovoltaic Labratory, Korea Institute of Energy Research

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ONSITE ELECTROLUMINESCENCE MEASUREMENT OF PV MODULE USING CMOS CAMERA

Takuya Fujiwara[1)], Shunsuke Nakamura[1)], Tomoaki Ikegami[1)]

[1)] Kumamoto University

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INVESTIGATION OF IMBRICATED SOLAR CELLS FOR HIGH POWER

Hongsub Jee[1)], Chaehwan Jeong[1)]

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VISUALIZATION OF TEMPORAL PH DISTRIBUTION IN PV MODULES DURING DAMP HEAT TEST USING A PH-SENSITIVE FLUORESCENT DYE SENSORS

Kentaro Iwami[1)], Hideaki Nagasaki[1)], Tomohiro Itayama[1)], Chizuko Yamamoto[2)], Yukiko Hara[2)], Atsushi Masuda[2)], Norihiro Umeda[2)]

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OBSERVATION OF REVERSE BIASED ELECTROLUMINESCENCE FROM LOCAL SHUNT OF P-TYPE C-SI SOLAR CELL

Hiroki Yoshida[1)], Takuya Shichi[1)], Fumitaka Ohashi[1)], Ruben Jeroimo Freitas[1)], Yukiko Hara[2)], Atsushi Masuda[2)], Shuichi Nonomura[1)]

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ELECTROCHEMICAL RECYCLING OF PHOTOVOLTAIC MODULE

Jong Won Ko[1)], Se Jin Park[1)], Hyomin Park[1)], Soohyun Bae[1)], Yoonmook Kang[1)], Hae-Seok Lee[1)], Donghwan Kim[1)]

[1)] Korea University

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EFFECT OF VISCOELASTICITY OF EVA ENCAPSULANTS ON PHOTOVOLTAIC MODULE SOLDER JOINT DEGRADATION DUE TO THERMOMECHANICAL FATIGUE

Jiang Zhu[1)], Michael Owen-Bellini[1)], Daniel Montiel-Chicharro[1)], Thomas R. Betts[1)], Ralph Gottschalg[1)]

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RAPID SATURATION OF POTENTIAL-INDUCED DEGRADATION IN N-TYEP C-SI PHOTOVOLTAIC MODULES

Seira Yamaguchi[1)], Kyotaro Nakamura[2)], Atsushi Masuda[3)], Keisuke Ohdaira[1)]

[1)] Japan Advanced Institute of Science and Technology, [2)] Meiji University, [3)] National Institute of Advanced Industrial Science and Technology

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RELATION OF ELECTROLUMINESCENCE INTENSITY AND POTENTIAL INDUCED DEGRADATION TEST TIME ON P-TYPE MONOCRYSTALLINE SILION PHOTOVOLTAIC MODULE

Takuya Oshima[1)], Daisuke Kobayashi[1)], Mohammad Aminul Islam[1)], Yasuaki Ishikawa[1)], Yukiharu Uraoka[1)]

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FAILURE MODES EVALUATION OF PV MODULES UNDER DIFFERENT CLIMATIC REGIONS IN CHINA

Hailing Li[1)], Fang Iv[1)]

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POTENTIAL-INDUCED DEGRADATION BEHAVIOR OF N-TYPE REAR-EMITTER C-Si PHOTOVOLTAIC MODULES PRESTRESSED IN DAMP-HEAT TESTS

Yutaka Komatsu[1)], Seira Yamaguchi[1)], Atsushi Masuda[2)], Keisuke Ohdaira[1)]

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LITETIME ESTIMATION OF SILICON PHOTOVOLTAIC MODULE USING LASER-BASED DIAGNOSIS TECHNOLOGY

Yasuaki Ishikawa[1)], Mohammad Aminul Islam[1)], Yasushi Takagi[2)], Hirotaka Iida[2)], Hidenari Nakahama[2)]

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INDOOR TESTS TO CONFIRM SEA WATER EFFECTS ON THE PERFORMANCE OF PHOTOVOLTAIC MODULE TO BE INSTALLED BENEATH THE SALT FARM

Cheolhyun Lim[1)], Hyunki Kim[1)], Woosuk Chang[1)], Changheon Kim[1)], Sukho Lee[1)], Bong-suck Kim[2)], Seung-min Lee[2)], Moon-Seon Jeong[2)]

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PERFORMANCE TEST AND ANALYSIS OF PV MODULES AFFECTED BY POTENTIAL INDUCED DEGRADATION

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SMALL PURE SINE GRID/STANDALONE INVERTER USING PLL SYNC TECNIQUE WITH DSPIC MICROCONTROLLER

worrajak muangjai[1)], Kosol Oranpiroj[1)], Wichan Jantee[1)], Piched Tanin[2)]

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A COMPACT PHOTOVOLTAIC POWER GENERATION SYSTEM BUILT WITH SUB-KW CLASS SILICON CARBIDE INVERTER AND SPHERICAL SILICON SOLAR CELLS

Yuji Ando[1)], Takeo Oku[1)], Masashi Yasuda[2)], Kazufumi Ushijima[3)], Mikio Murozono[4)]

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PV module temperature measurement procedure in monitoring PV system and commissioning tests

Hiromi Tobita[1)], Hirofumi Shinohara[1)]

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8ThPo.234

INTERPOLATION METHOD FOR MISSING DATA OF MEASUREMENT IN MEGA SOLAR POWER PLANT USING WAVELET TRANSFORMS

Shigeomi Hara[1], Makoto Kasu[1]

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Establishment of Thermal Model of Ni-MH Battery under Low Temperature - Surface Temperature Characteristics by Fluctuating Charge and Discharge Current Examination -

Shunta Sasaya[1], Shogo Nishikawa[1]

[1] Nihon University

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Modeling of Ni-MH Battery for Syowa Base Voltage Reply Model Under Low Temperature(part 2)

Terumasa Asaka[1], Shogo Nishikawa[1]

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DESIGN SIMULATION AND EXPERIMENTAL PERFORMANCE OF DEEPWELL PV PUMPING SYSTEM FOR DOMESTIC APPLICATIONS IN THAILAND

Teerasak Somsak[1], Wichai Tachamahaphan[2], Nuttaphon Tiwongsa[2], Nopporn Patcharaprakiti[2], Jutturit Thongporn[2]

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SUBSECOND INTERVAL MEASUREMENTS OF OUTDOOR-OPERATED MEGA SOLAR POWER PLANT

Shigeomi Hara[1], Makoto Kasu[1]

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VALIDATION OF DIRECT NORMAL SPECTRAL IRRADIANCE MEASUREMENTS FROM ROTATING SHADOWBAND SPECTRORADIOMETER

Mário Pó[1], Kees Hoogendijk[1], Will Beuttell[1], Kazunori Shibayama[1], Eiji Takeuchi[1], Toshikazu Hasegawa[1]

[1] EKO Instruments Co., Ltd.

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SUB SECOND IRRADIANCE MEASUREMENTS WITH A FAST THERMOPILE PYRANOMETER

Mário Pó[1], Kees Hoogendijk[1], Will Beuttell[1], Akihito Akiyama[1], Toshikazu Hasegawa[1]

[1] EKO Instruments Co., Ltd.

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DEVELOPMENT OF PHOTOVOLTAIC THERMOELECTRIC PORTABLE DRINKING WATER SYSTEM: FLOOD CRISIS

Jutturit Thongpron[1], Chana Uttasilp[1], Nopporn Patcharaprakiti[1], Teerasak Somsak[3]

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PERFORMANCE EVALUATION OF GAN MPPT BY TRANSIENT CHARACTERISTICS

Masayoshi Hamanaka[1], Takanori Matsuyama[2], Kazuto Yukita[1], Toshiro Matsumura[1], Yasuyuki Goto[1]

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DEVELOPMENT OF A HYPERSPECTRAL DEVICE FOR SOLAR RESOURCE ASSESSMENT

Jose Mario Po[1], Erik Haverkamp[2], Kees Hoogendijk[1], Toshikazu Hasegawa[1]

[1] EKO Instruments Co., Ltd, [2] Radboud University

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AN ENERGY EFFICIENCY BETWEEN R22 AC COMPRESSOR AND R410 BLDC ROTARY COMPRESSOR OF SPLIT TYPE SOLAR AIR CONDITIONER

Nopporn Patcharaprakiti[1], Weerachat Kuadkeaw[1], Teerasak Somsak[1], Jutturit Thongpron[1]

[1] Electrical Engineering, Rajamangala University of Technology Lanna

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A SULFUR REMOVAL OF LIGNITE COAL WASHED WATER BY SOLAR POWERED ELECTROCOAGULATION SYSTEM

Nopporn Patcharaprakiti[1], Panuwat Tipwangmek[1], Teerasak Somsak[1], Jutturit Thongpron[1]

[1] Electrical Engineering, Rajamangala University of Technology Lanna

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NIGHTTIME SOC CONTROL METHOD IN A RESIDENTIAL AREA WITH A LARGE PENETRATION OF PV SYSTEMS WITH STORAGE BATTERIES

Junya Matsunaga[1)], Shinji Wakao[1)]

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STORAGE BATTERY MANAGEMENT IN PHOTOVOLTAIC SYSTEMS BASED ON PREDICTION INTERVAL ESTIMATION OF ELECTRIC POWER DEMAND

Mihoko Oda[1)], Shinji Wakao[1)]

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Solar Powered Vehicle of NIT challenging WSC2017 in Australia.

Hideki Jonokuchi[1,2)], Kousuke Ide[2)], Naoki Harada[2)], Hiroki Ataka[2)], Osamu Eryu[3)], Masayoshi Umeno[3)]

[1)] IMRA AMERICA INC. at Nagoya Instititute of Technology., [2)] Nagoya Institute of Technology, [3)] Emeritus of Nagoya Institute of Technology

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EVALUATION OF BIPV COMPETITIVENESS & MARKET POTENTIAL IN KEY EUROPEAN COUNTRIES

Gaëtan Masson[1)], Philippe Macé[1)], Adel El Gammal[1)]

[1)] Becquerel Institute

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DIFFERENCE OF GRID CODE FOR PV INVERTER IN THAILAND AND OTHERS

Ballang Muenpinij[1)], Sittichai Munggornrit[1)], Manit Seapan[1)], Anawach Sangswang[1)], Tanokkorn Chenvidhaya[1)], Dhirayut Chenvidhya[1)], Krissanapong Kirtikara[1)]

[1)] CES Solar Cells Testing Center, Pilot Plant Development and Training Institute, King Mongkut's University of Technology Thonburi

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A Detailed Hourly Snow Model with Photo, Temperature and Irradiance Parameter Validation in Northern Japan for More Accurate Energy Yield Predictions in Snowy Conditions

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AN ANALYSIS OF ENERGY TIME SHIFT PV APPLICATION FOR PREVENTING UNEXPECTED CURRENT ABSORPTION FROM GRID

CHAHO AHN[1)]

[1)] OCI

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DESIGN OPTIMIZATION AND EXPERIMENTAL PERFORMANCE OF PV AND PICO- HYDRO GENERATOR SYSTEM FOR HIGHLAND RURAL LEARNING CENTER IN THAILAND

Teerasak Somsak[1)], Assawathep Sanpin[2)], Worrajak Muangjai[1)], Nopporn Patcharaprakiti[2)], Jutturit Thongporn[2)]

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AN INVESTIGATION OF LOAD SHIFTING WITH PV HOME BATTERY IN THAILAND

Teerasak Somsak[1)], Rattadach Kundach[2)], Nuttaphon Tiwongsa[2)], Nopporn Patcharaprakiti[2)], Anon Namin[2)], Kosol Oranpiroj[2)], worrajak Muangjai[1)], jutturit thongpron[2)]

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OPTIMIZING WRF INPUT PARAMETERS USING EXPLORATORY DATA ANALYSIS

Malcolm Ng[1)], Hadrien Verbois[1)], Robert Huva[1)], Wilfred Walsh[1)]

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DEVELOPMENT OF SHORT-TERM PREDICTION METHOD FOR OPTIMUM POWER CONTROL BASED ON ACTUAL MEASUREMENT DATA ANALYSIS OF PHOTOVOLTAIC POWER GENERATION

Mitsuhiro Umizaki[1)], Fumichika Uno[1)], Takashi Oozeki[1)]

[1)] National Institute of Advanced Industrial Science and Technology

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FORECASTING CONFIDENCE INTERVALS OF IRRADIATION IN SINGLE POINT BY USING AREAL NUMERICAL WEATHER

PREDICTION DATA

Takumi Ogawa[1)], Yuzuru Ueda[1)], Yoshinori Yamada[2)], Hideaki Ohtake[3)], Takashi Oozeki[3)], Jun-ichi Imura[4)]

[1)] Department of Electrical Engineering, Tokyo University of Science, [2)] Meteorological Research Institute, Japan Meteorological Agency, [3)] National Institute of Advanced Industrial Science and Technology, [4)] Tokyo Institute of Technology

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DAY-AHEAD ALLOCATION OF PLANNED POWER FLOW TO THE RESIDENTIAL HOUSES WITH PV AND BATTERY FOR MAXIMUM USE OF DISTRIBUTED BATTERIES

Jindan Cui[1)], Takahiro Sasaki[1)], Yuzuru Ueda[1)], Masakazu Koike[2)], Takayuki Ishizaki[3)], Jun-ichi Imura[3)]

[1)] Tokyo University of Science, [2)] Tokyo University of Marine Science and Technology, [3)] Tokyo Institute of Technology

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AN OPTIMAL DESIGN OF GRID CONNECTED PHOTOVOLTAIC SYSTEM WITH BATTERY FOR RESIDENTIAL CUSTOMER

Nopporn Patcharaprakiti[1)], Rattadach Kundach[1)], Teerasak Somsak[1)], Jutturit Thongpron[1)]

[1)] Electrical Engineering, Rajamangala University of Technology Lanna

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TRANSITION PATTERN ANALYSIS OF PV OUTPUT BASED ON PREDICTION INTERVAL ESTIMATION

Naohiro Koura[1)], Shinji Wakao[1)]

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