



Solar World Congress 2025

SCIENTIFIC PROGRAMME



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ORAL SESSIONS



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SCIENTIFIC PROGRAMME

TUESDAY - 04/11/2025 - MORNING

ORAL SESSION 1 - BIFACIAL PV PERFORMANCE

Room: José de Alencar 1-3 (Auditorium) | **Chair:** Prof. Dr. Ricardo Rüther (Fotovoltaica/UFSC - Brazil)

09:00	ENERGY YIELD ENHANCEMENT OF VERTICAL BIFACIAL PHOTOVOLTAIC MODULES THROUGH REFLECTORS <i>Michael Anthony García Huamaní, David Elías Nuñez Rishmawi, Jose Ruben Angulo Abanto, Guillermo Edmundo Baldwin Olguin, Jan Amaru Palomino Töfflinger</i> <i>Pontificia Universidad Católica del Perú</i>
09:15	PERFORMANCE AND ENERGY GAINS OF BIFACIAL PV TECHNOLOGIES ACROSS DIFFERENT ALBEDO CONDITIONS <i>Thamires Alves Silva, Marília Braga, Rafael Antunes Campos, Gustavo Xavier de Andrade Pinto, Anelise Medeiros Pires, Helena Flávia Naspolini, Ricardo Rüther</i> <i>Fotovoltaica/UFSC Laboratory</i>
09:30	THE ROLE OF HIGH-ALBEDO GROUND COVER MATERIALS IN IMPROVING BIFACIAL PV PERFORMANCE: A CASE STUDY IN BRAZIL <i>Marília Braga¹, Kevin Luiz Rocha de Azevedo¹, Gustavo Xavier de Andrade Pinto¹, Anelise Medeiros Pires¹, Helena Flávia Naspolini¹, Camila do Valle², Ricardo Rüther¹</i> <i>¹ Fotovoltaica/UFSC Laboratory; ² Azul Pack</i>
09:45	FIELD-BASED ALBEDO CHARACTERIZATION STATION: ASSESSING GROUND REFLECTIVITY FOR ENHANCED MODELING OF BIFACIAL PHOTOVOLTAIC SYSTEMS <i>Kevin Luiz Rocha de Azevedo, Marília Braga, Anelise Medeiros Pires, Thamires Alves Silva, Camila do Valle, Helena Flávia Naspolini, Ricardo Rüther</i> <i>Fotovoltaica/UFSC Laboratory</i>
10:00	PERFORMANCE EVALUATION OF VERTICAL EAST-WEST BIFACIAL PV MODULES COMPARED TO TILTED BIFACIAL AND MONOFACIAL MODULES IN COASTAL PERU <i>Michael Anthony García Huamaní, Jose Ruben Angulo Abanto, Rafael Jesus Vidal Coral, Dante Alberto Mendoza Aucaruri, Muriel Berthomieu, Jan Amaru Palomino Töfflinger</i> <i>Pontificia Universidad Católica del Perú</i>
10:15	THE EFFECT OF MOUNTING PARAMETERS ON THE PERFORMANCE OF BIFACIAL SOLAR MODULES <i>Gloria Katunge Maithya, Sebastian Waita, Francis Wanjala Nyongesa, Bernard Odhiambo Aduda</i> <i>University of Nairobi</i>



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TUESDAY - 04/11/2025 - MORNING

ORAL SESSION 2 - BIPV: DESIGN STRATEGIES

Room: José de Alencar 4 (Room 5) | **Chair:** Prof. Dr. Isis Portolan dos Santos (UFSM - Brazil)

09:00	AN INTEGRATED OPTIMIZATION DESIGN FRAMEWORK FOR BIPV APPLICATIONS IN OFFICE BUILDINGS <u>Yusen Zhao</u> ¹ , <u>Rebecca Yang</u> ² ¹ RMIT University; ² The University of Melbourne
09:15	ASSESSING THE PASSIVE TRACKING POTENTIAL OF PV-INTEGRATED BUILDING FAÇADES IN A LOW-LATITUDE SITE <u>Isadora Pauli Custódio</u> , <u>Gustavo Xavier de Andrade Pinto</u> , <u>Sabrina Rodrigues Ebert</u> , <u>Marília Braga</u> , <u>Thamires Alves Silva</u> , <u>Ricardo Rüther</u> Fotovoltaica/UFSC Laboratory
09:30	A SIMPLIFIED GRAPHIC APPROACH TO INTEGRATE PV PANELS INTO A BUILDING DESIGN PROCESS <u>Thiago Vieira Fonseca</u> ¹ , <u>Aldomar Pedrini</u> ² ¹ IFRN; ² UFRN
09:45	FIELD PERFORMANCE ASSESSMENT OF BIFACIAL MODULES INTEGRATED INTO BUILDING ENVELOPES IN A LOW-LATITUDE SITE <u>Isadora Pauli Custódio</u> ¹ , <u>Instituto Federal de Santa Catarina</u> ² , <u>Instituto Nacional de Pesquisas Espaciais</u> ³ , <u>Sabrina Rodrigues Ebert</u> ¹ , <u>Anelise Medeiros Pires</u> ¹ , <u>Matheus Hohmann</u> ¹ , <u>Ricardo Rüther</u> ¹ ¹ Fotovoltaica/UFSC Laboratory; ² IFSC; ³ INPE
10:00	DIGITAL TWINS FOR PHOTOVOLTAIC PLANTS PERFORMANCE MONITORING <u>Gustavo Fraidenaich</u> , <u>José Eduardo Carlos Castilho</u> , <u>Gabriel Pereira Viterbo</u> , <u>Tárcio André dos Santos Barros</u> , <u>Denis Gustavo Fantinato</u> Universidade Estadual de Campinas



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TUESDAY - 04/11/2025 - MORNING

ORAL SESSION 3 - EXTREME WEATHER & OVERIRRADIANCE EVENTS

Room: Sala de Reunião 1 (Room 1) | **Chair:** Dr. Fernando Martins (UNIFESP / INPE - Brazil)

09:00	FORECASTING PV OUTPUT DURING AEOLIAN DUST EVENTS: A CASE STUDY IN THE EAST MEDITERRANEAN <u>Pantelis Kiriakidis¹</u> , <u>Alexandros G. Charalambides²</u> , <u>Andreas Ioannides³</u> , <u>Theodoros Christoudias¹</u> ¹ The Cyprus Institute; ² Cyprus Technological University; ³ Johnsun Ltd
09:15	ASSESSMENT OF THE PERFORMANCE OF CLIMATE MODELS DOWNSCALING FOR SOLAR RADIATION IN BRAZIL <u>Hallan Souza de Jesus¹</u> , <u>Andre Rodrigues Goncalves²</u> , <u>Rodrigo Santos Costa²</u> , <u>Francisco José Lopes de Lima¹</u> , <u>Paula Conde Santos Borba¹</u> , <u>Meiriele Alvarenga Cumplido²</u> , <u>Enio Bueno Pereira²</u> , <u>Fernando Ramos Martins¹</u> ¹ Federal University of São Paulo-UNIFESP; ² National Institute for Space Research-INPE
09:30	OVERIRRADIANCE: CHARACTERIZATION AND FORECAST IN THE CENTRAL AMAZON <u>Vinicius Roggerio da Rocha¹</u> , <u>Rodrigo Santos Costa¹</u> , <u>Gilberto Fisch¹</u> , <u>Antônio Ruano²</u> ¹ INPE-National Institute for Space Research; ² Ualg-University of Algarve
09:45	INSIGHTS INTO THE FREQUENCY AND INTENSITY OF OVERIRRADIANCE EVENTS IN DIVERSE BRAZILIAN CLIMATES <u>Samira de Azevedo Santos Emiliavaca</u> , <u>Alan Rodrigues de Sousa</u> , <u>João Vítor Fonseca de Mendonça</u> , <u>André Luiz de Oliveira Lira</u> , <u>Ana Cleide Bezerra Amorim</u> , <u>Gabriela Rocha Alves da Silva</u> , <u>Bruno do Nascimento e Silva</u> Instituto SENAI de Inovação em Energias Renováveis-ISI-ER
10:00	ANALYSIS OF CLOUD COVER RELATED TO OVERIRRADIANCE EVENTS USING ALLSKY CAMERA <u>Moisés Elias Nascimento Rufino da Costa¹</u> , <u>Ana Cleide Bezerra Amorim¹</u> , <u>Samira de Azevedo Santos Emiliavaca¹</u> , <u>João Vítor Fonseca de Mendonça¹</u> , <u>Gabriela Rocha Alves da Silva¹</u> , <u>Alan Rodrigues de Sousa¹</u> , <u>Pedro Rodrigues Mutti²</u> , <u>Artur Manoel Guimarães da Silveira²</u> ¹ Instituto SENAI de Inovação em Energias Renováveis; ² Universidade Federal do Rio Grande do Norte
10:15	CLIMATE CHANGE IMPACTS ON WIND ENERGY GENERATION IN BRAZIL'S NORTHEAST: A COMPARATIVE ANALYSIS OF RIO GRANDE DO NORTE AND CEARÁ <u>Guilherme Alcantara Barbosa Cunto¹</u> , <u>Danillo Roberto Pereira²</u> , <u>Iuri Emmanuel de Paula Ferreira¹</u> , <u>Rafael de Oliveira Tiezzi¹</u> ¹ UFSCAR; ² UNESP



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TUESDAY - 04/11/2025 - MORNING

ORAL SESSION 4 - ENERGY TRANSITION, SOCIETY AND JUSTICE

Room: Sala de Reunião 2 (Room 2) | **Chair:** Prof. Dr. Karla Cedano (Universidad Nacional Autónoma de México - Mexico)

09:00	SOLAR PHOTOVOLTAIC GENERATION IN MANÉ DENDÊ: DEMOCRATIZATION OF SOLAR ENERGY IN POPULAR AREAS <u>Amanda Dias Souza Santos</u>¹, <u>Ana Christina Romano Mascarenhas</u>¹, <u>Daniel Sarmento de Freitas</u>¹, <u>Nathane Lima Cintra</u>² ¹ Neoenergia Coelba; ² Associação Voluntários para o Serviço Internacional Brasil
09:15	COMPENSATIONS AND ENERGY JUSTICE IN THE CONTEXT OF GREEN HYDROGEN: REFLECTIONS FROM THE AUSTRAL SOUTH <u>Cristiane Silva de Carvalho</u>¹, <u>Juana Angélica Felipe Fernandes</u>², <u>Claudio A. Agostini</u>², <u>Rodrigo Palma-Behnke</u>³ ¹ Universidad de Magallanes; ² Universidad Adolfo Ibáñez; ³ Universidad de Chile
09:30	GENDER AND CORPORATE PRACTICES IN THE SOLAR PHOTOVOLTAIC SECTOR: A CRITICAL LOOK AT REDE MESOL AWARDEES <u>Gabriela Martins Flores</u>¹, <u>Renata Mansuelo Alves Domingos</u>², <u>Ingrid de Paula Marques</u>¹, <u>Bárbara Gomes Pereira</u>³, <u>Aline Cristiane Pan</u>¹ ¹ Universidade Federal do Rio Grande do Sul; ² Universidade Federal de Santa Catarina; ³ Centro Federal de Educação Tecnológica Celso Suckow da Fonseca
09:45	ENERGY TRANSITION AND LAND USE CHANGE: THE EMERGENCE OF PHOTOVOLTAIC INFRASTRUCTURE IN THE AGRICULTURAL SECTOR OF THE O'HIGGINS REGION, CHILE <u>Marcia Montedonico</u>, <u>Carla Lanyon</u>, <u>Antonia Jeldes</u>, <u>Francisca Herrera</u> University of Chile
10:00	FREE ENERGY MARKET TRANSITION: A STUDY CASE OF 32 CONSUMPTION UNITS IN BRAZIL <u>Anderson Azevedo Fraga</u>¹, <u>Sabrina Antonio Torres</u>¹, <u>Charles Dias de Almeida</u>¹, <u>Henrique Ferrario Traba</u>¹, <u>Lohane Barcelos Palaoro</u>¹, <u>Guilherme Henrique Pereira</u>², <u>Marcelo Eduardo Vieira Segatto</u>¹ ¹ Federal University of Espirito Santo; ² Arandu Institute
10:15	TOWARDS A JUST ENERGY TRANSITION: A PRACTICAL GUIDE FOR INTER AND TRANSDISCIPLINARY ENERGY PROJECTS <u>Francisca Herrera</u>¹, <u>Carla Lanyon</u>², <u>Marcia Montedonico</u>², <u>Dasla Pando</u>², <u>Danny Espin</u>³, <u>Viviana Araus</u>², <u>Emma Velterop</u>⁴, <u>Antonio Marín</u>⁵, <u>Rodrigo Palma-Behnke</u>² ¹ Energy Center, Redpe, University of Chile; ² Energy Center, University of Chile; ³ Universidad Federico Santa María; ⁴ Stanford University; ⁵ University of Chile



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TUESDAY - 04/11/2025 - MORNING

ORAL SESSION 5 - HYBRID SYSTEMS AND POWER-TO-X

Room: Sala de Reunião 3 (Room 3) | **Chair:** Prof. Dr. Michael Leung (U Hong Kong - Hong Kong)

09:00	OPTIMIZING DIRECT SOLAR-TO-HYDROGEN CONVERSION: MODELING AND CONTROL OF SHJ-PV AND PEM ELECTROLYZER INTEGRATION <i>Diamantis Almpantis, Henrik Davidsson, Martin Andersson</i> <i>Lund University</i>
09:15	PROJECT SULPHURREAL: DEVELOPMENT OF DIGITAL TWIN OF THERMOCHEMICAL CYCLE FOR SOLID SULPHUR PRODUCTION FOR LONG-TERM STORAGE OF SOLAR ENERGY <i>João Humberto Serafim Martins¹, Yasuki Kadohiro¹, Dimitrios Dimitrakis¹, Christos Agrafiotis¹, Nathalie Monnerie¹, Christian Sattler¹, Sofia Polymeni², Giannis Aslanis², Vasileios Lolis², Ilias Kalamaras², Konstantinos Votis²</i> <i>¹ German Aerospace Center (DLR), Cologne - Germany; ² Centre for Research & Technology, Hellas (Certh), Thessaloniki - Greece</i>
09:30	DECARBONIZING POWER AND TRANSPORT SECTORS THROUGH RENEWABLE INTEGRATION: BATTERY, HYDROGEN, AND POWER-TO-MOBILITY SOLUTIONS <i>Mahamat Adoum Abdoulaye¹, Sebastian Waita¹, Julius M. Mwabora¹, Cyrus Wabuge Wekesa^{2,3}</i> <i>¹ Department of Physics, University of Nairobi, Kenya; ² School of Engineering, University of Eldoret, Kenya</i>
09:45	TECHNO-ECONOMIC OPTIMIZATION OF PV, BESS, AND HYBRID PV+BESS SYSTEM SIZING IN CHILE UNDER ENERGY ARBITRAGE STRATEGIES <i>Jorge Luis Saavedra Pinto</i> <i>Fraunhofer Chile Research</i>
10:00	INTEGRATION OF PHOTOVOLTAIC SYSTEMS WITH FIRST AND SECOND LIFE BATTERIES - A TECHNICAL-ECONOMICAL CASE STUDY IN BRAZIL <i>João Pedro Frederico de Abreu, Vinícius Hirassaki, Helena Flávia Napolini, Ricardo Rüther</i> <i>Universidade Federal de Santa Catarina</i>
10:15	RENEWABLE ELECTRICITY SUPPLY IN AMAZONAS: ENERGY MODELING TO DECARBONIZE ISOLATED SYSTEMS <i>Meiriele Alvarenga Cumplido¹, Andre Rodrigues Goncalves¹, Fernando Ramos Martins², Paula Conde Santos Borba², Rodrigo Santos Costa¹, Felipe Husadel Poyer¹, Ricardo Rüther³, Enio Bueno Pereira¹</i> <i>¹ INPE; ² UNIFESP; ³ UFSC</i>



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TUESDAY - 04/11/2025 - MORNING

ORAL SESSION 6 - SOLAR HEAT FOR INDUSTRIAL PROCESSES

Room: Sala de Reunião 4 (Room 4) | **Chair:** Prof. Dr. Jose Miguel Cardemil (PUC - Chile)

09:00	SOLAR HEAT FOR A HOT DIP GALVANIZING PROCESS USING LINEAR FRESNEL COLLECTORS AND PACKED BED THERMAL ENERGY STORAGE <i>Ian Wolde Ponce¹, Ignacio Calderon Vasquez¹, Felipe G. Battisti², José M. Cardemil¹</i> ¹ Pontificia Universidad Católica de Chile; ² UTEM
09:15	DESIGN, CONSTRUCTION AND OPERATION OF AN INNOVATIVE LINEAR FRESNEL COLLECTOR <i>Loreto Valenzuela¹, Diego Pulido Iparraguirre², Juan R. López Guerrero¹, Jesús Valero¹, Ginés García¹</i> ¹ Ciemat-Plataforma Solar de Almería; ² Universidad de Antofagasta
09:30	COMPARATIVE ANALYSIS OF SOLAR THERMAL AND PV-ASSISTED HEAT PUMP TECHNOLOGIES FOR INDUSTRIAL PROCESS HEAT IN SOUTHERN AFRICA AND CENTRAL EUROPE <i>Johannes Koke¹, Francois Rozon²</i> ¹ Osnabrueck University of Applied Sciences; ² Stellenbosch University
09:45	ANALYSIS OF HEAT PIPES FOR CPC SOLAR COLLECTORS TO PROVIDE HEAT FOR INDUSTRIAL PROCESSES <i>Renzo Guido Cruz, Juan Manuel Rodríguez Muñoz, Pedro Andrés Galione Klot</i> <i>Universidad de la Republica</i>
10:00	SOLAR HEAT FOR INDUSTRIAL PROCESSES PROTOTYPE FACILITY IN URUGUAY, USING CPC AND CONCRETE THERMAL ENERGY STORAGE <i>Pedro Andrés Galione Klot¹, Germán Navarrete Cereijo¹, Renzo Guido Cruz¹, Juan Manuel Rodríguez Muñoz¹, Italo Bove¹, Federico Licandro¹, Joaquin Abraham Buydid Castro², Sebastián Andrés Lillo Órdenes², Roberto Dellicompagni³, Marcos Hongn³, Loreto Valenzuela⁴, Emmanuel Romano Riela²</i> ¹ Universidad de la República; ² Volfer Ingeniería; ³ Instituto de Investigaciones en Energía no Convencional; ⁴ Plataforma Solar de Almería
10:15	OPTIMIZATION OF A SOLAR THERMAL PLANT INTEGRATED TO AN INDUSTRIAL PROCESS USING MACHINE LEARNING AND GENETIC ALGORITHMS <i>Ana Valentina Puentes Alarcón, Francisco Fuentes, Ivan Muñoz, Francisco Moraga Ramírez</i> <i>Fraunhofer Chile</i>



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TUESDAY - 04/11/2025 - AFTERNOON

ORAL SESSION 7 - OPERATION OF PV SYSTEMS

Room: José de Alencar 4 (Room 5) | **Chair:** Prof. Dr. Gilberto Figueiredo Filho (UFF - Brazil)

14:00	SINGLE-PYRANOMETER APPROACH FOR DIFFUSE OPTIMIZATION IN SOLAR TRACKING SYSTEMS <i>Joao Gabriel Firta Foes¹, Rafael Antunes Campos¹, <u>Lucas Rafael do Nascimento¹</u>, Jonas Wetzel², Rafael Rodrigues de Souza², Ricardo Rüther¹</i> ¹ UFSC; ² Brametal
14:15	QUANTIFYING SOILING LOSSES WITHOUT SENSORS <i>João Pedro Costa Barnabé, Gustavo Fraidenraich, Tércio André dos Santos Barros, Marcelo Vinícius de Paula, Marcel Veloso Campos, João Lucas de Souza Silva, <u>João Frederico Souza de Paula</u></i> <i>Universidade Estadual de Campinas</i>
14:30	MODELING AND ANALYSIS OF PV MODULE FAULTS IN GRID-CONNECTED SYSTEMS USING MATLAB/SIMULINK UNDER REAL WEATHER CONDITIONS <i>Beatriz Barbosa Franco Ramos, <u>Daniel Henrique Nogueira Dias</u>, Alexandre de Arruda Bitencourt</i> <i>Universidade Federal Fluminense</i>
14:45	ELECTROLUMINESCENCE TEST TO IDENTIFY DEFECT FREQUENCY IN PHOTOVOLTAIC MODULES <i><u>Dayane Cynthia Pinto Oliveira</u>, Amanda Gomes Barboza, Camila Fernanda Cardoso Teixeira, Nicholas Medeiros Lopes, João Vítor Fonseca de Mendonça, Alan Rodrigues de Sousa, Samira de Azevedo Santos Emiliavaca</i> <i>Instituto SENAI de Inovação em Energias Renováveis, ISI-ER</i>
15:00	A DATA DRIVEN STRING SIZING METHODOLOGY FOR UTILITY-SCALE PHOTOVOLTAIC SYSTEMS <i><u>Filipe Godoy Souza^{1,3}</u>, Marília Braga², Maria Fernanda Nunes Silva³, Ricardo Rüther²</i> ¹ University of Freiburg; ² Fotovoltaica/UFSC; ³ Kroma Energia
15:15	ARTIFICIAL INTELLIGENCE-BASED FAULT DETECTION IN PHOTOVOLTAIC POWER PLANTS USING DRONE-ACQUIRED THERMAL IMAGING <i>Daniel Henrique Nogueira Dias, Gilberto Figueiredo Pinto Filho, <u>Eduardo Martins da Silva</u>, Vitor Hugo Ferreira, Wanderson da Silva Corrêa</i> <i>Universidade Federal Fluminense</i>



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TUESDAY - 04/11/2025 - AFTERNOON

ORAL SESSION 8 - FORECASTING & MACHINE LEARNING FOR SOLAR RESOURCE

Room: Sala de Reunião 1 (Room 1) | **Chair:** Dr. Arttu Tuomiranta (TotalEnergies - France)

14:00	TRANSFER LEARNING FOR PV GENERATION FORECASTING UNDER DATA SCARCITY: A CASE STUDY IN BRAZIL <i>Fernando Vasconde de Arruda¹, Marcelo Pinho Almeida¹, <u>Fernando Ramos Martins</u>²</i> ¹ IEE-USP; ² UNIFESP
14:15	SITE ADAPTATION FOR GLOBAL HORIZONTAL IRRADIANCE IN ARGENTINA USING A MULTILAYER PERCEPTRON <i><u>German Salazar</u>¹, Christian Gueymard², Ruben Ledesma¹, Olga de Castro Vilela³</i> ¹ Inenco-Conicet; ² Solar Consulting Services; ³ Universidade Federal de Pernambuco
14:30	ENHANCING GLOBAL SOLAR IRRADIANCE FORECASTS IN BRAZIL USING NUMERICAL MODELS AND MACHINE LEARNING <i><u>Francisco José Lopes de Lima</u>¹, Andre Rodrigues Goncalves¹, Rodrigo Santos Costa¹, Enio Bueno Pereira¹, Fernando Ramos Martins²</i> ¹ National Institute for Space Research; ² Federal University of São Paulo
14:45	SOLAR IRRADIANCE INTRADAY FORECASTING USING LSTM NETWORKS, GROUND MEASUREMENTS AND SATELLITE INFORMATION <i><u>Ximena Orsi</u>¹, Paula Iturbide¹, Rodrigo Alonso Suárez², Dario Licata Caruso¹, Anahi Lanson¹, Valeria Sol Stern¹</i> ¹ Gersolar, Grupo de Estudios de la Radiación Solar. Universidad Nacional de Luján; ² Laboratorio de Energía Solar, Universidad de la República
15:00	IMPACT OF TRAINING STRATEGIES ON SATELLITE-BASED SOLAR IRRADIANCE FORECAST <i><u>Mariana Batista de Sousa</u>, Rodrigo Henrique de Lima Farias, Alexandre Carlos Araújo da Costa, Olga de Castro Vilela</i> Federal University of Pernambuco
15:15	DEEP LEARNING FOR SATELLITE-BASED SOLAR IRRADIANCE FORECASTING <i><u>Rodrigo Alonso Suárez</u>¹, Andrés Herrera², Franco Marchesoni Acland³</i> ¹ Laboratorio de Energía Solar, CENUR Litoral Norte, UDELAR; ² Laboratorio de Energía Solar, Facultad de Ingeniería, UDELAR; ³ Centre Borelli, Crns, Ens Paris-Saclay, Université Paris-Saclay



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TUESDAY - 04/11/2025 - AFTERNOON

ORAL SESSION 9 - EDUCATION AND TRAINING

Room: Sala de Reunião 2 (Room 2) | **Chair:** Prof. Dr. Izete Zanesco (PUC-RS - Brazil)

14:00	TEACHING RENEWABLE ENERGY CONCEPTS WITH PORTABLE SOLAR PANELS: A HANDS-ON LEARNING PROJECT <u>Mariana Amorim Fraga</u> <i>Universidade Presbiteriana Mackenzie</i>
14:15	ENERGY TRANSITION IN THE CONTEXT OF FAMILY FARMING IN PIAUI: DEVELOPMENT OF AN EDUCATIONAL APPLICATION APPLIED TO ENERGY TRANSITION <u>Ana Karoline Silva Martins¹</u> , <u>Albemerc Moura de Moraes²</u> ¹ Federal University of Piauí-UFPI; ² Interdisciplinary Research Group on Solar Energy of Piauí-GIPES/UFPI
14:30	PEDAGOGICAL STRATEGIES FOR RENEWABLE ENERGY EDUCATION IN ELEMENTARY SCHOOLS <u>Michele Fossati</u> , <u>Maria Luíza Severo</u> , <u>Mariana Coelho da Costa</u> <i>Universidade Federal de Santa Catarina</i>
14:45	INTEGRATING SUSTAINABILITY, TECHNICAL SKILLS, AND CULTURAL COMPETENCIES: EDUCATIONAL INSIGHTS FROM A VOLUNTEER-LED OFF-GRID PV PROJECT IN PERU <u>Shashi Persaud</u> <i>Southern Alberta Institute of Technology</i>
15:00	EDUCATION FOR AN EQUITABLE ENERGY FUTURE: LESSONS FROM SOUTHERN BRAZIL <u>Aline Cristiane Pan¹</u> , <u>Michele Fossati²</u> , <u>Ísis Portolan dos Santos³</u> , <u>Gabriela Pereira da Silva Maciel¹</u> , <u>Angela Carine Moura Figueira¹</u> , <u>Amanda Mendes Ferreira Gomes²</u> , <u>Renata Mansuelo Alves Domingos²</u> , <u>Ricardo Rütther²</u> , <u>Liege Dalpra Flores²</u> , <u>Juliana Klas¹</u> , <u>Bianca Neves Machado¹</u> , <u>Regional Council Of Engineering And Agronomy⁴</u> , <u>Liane Ludwig Loder¹</u> , <u>Valquiria Villas Boas Gomes Missel¹</u> , <u>Juliane Borba Minitto¹</u> , <u>Thais Crestani⁵</u> , <u>Alice Stephanie Tapia Sartori¹</u> , <u>Mariana Oliveira Santos Barbosa Mendes¹</u> , <u>Jennifer Carrion¹</u> , <u>Júlia Rechia Voltolini²</u> , <u>Laura da Silva de Camargo³</u> , <u>Sinara Silveira Santos⁶</u> , <u>Joice Teresinha Airoidi Costa⁷</u> , <u>Michelle Bicalho Antunes⁸</u> , <u>Lisandra Barreto da Silva⁹</u> , <u>Thais de Paiva Corrêa Picanço¹⁰</u> , <u>Thieli Vicenci Wildgrube³</u> , <u>Gabriela Sehnem Heck¹</u> ¹ URGs; ² UFSC; ³ UFSM; ⁴ CREA; ⁵ PUC-RS; ⁶ Assis Brasil State High School; ⁷ Barão de Tramandaí State Institute of Education; ⁸ Vicente Farencena Municipal Elementary School; ⁹ Fredolino Chimango Municipal Elementary School; ¹⁰ Simão José Hess Basic Education School
15:15	EDUCATION, GENDER AND THE ENERGY MANAGEMENT ROLE TO THE ENERGY TRANSITION <u>Juliana Klas¹</u> , <u>Renata Mansuelo Alves Domingos²</u> , <u>Michele Fossati²</u> , <u>Gabriela Sehnem Heck¹</u> , <u>Tiago Rosalen Scharodosim de Matos¹</u> , <u>Aline Cristiane Pan³</u> ¹ Federal University of Rio Grande do Sul; ² Federal University of Santa Catarina; ³ UFRGS



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SCIENTIFIC PROGRAMME

TUESDAY - 04/11/2025 - AFTERNOON

ORAL SESSION 10 - BIPV: POTENTIAL AND MARKET OPPORTUNITIES

Room: Sala de Reunião 3 (Room 3) | **Chair:** Prof. Dr. Rebecca Yang (University of Melbourne - Australia)

14:00	SOLAR ENERGY FOR SUSTAINABLE FUEL: A SELF-SUSTAINABLE BRAZILIAN LABORATORY FOR GREEN HYDROGEN AND AMMONIA <u>Aline Kirsten Vidal de Oliveira</u> ¹ , Weronika Smolarek ¹ , Jasmin Gräßler ¹ , Daniel Odilio dos Santos ² , Maira Mallmann ² , Ricardo Rüther ² ¹ Technische Hochschule Ingolstadt; ² Universidade Federal de Santa Catarina
14:15	REAL-TIME ESTIMATION OF URBAN SOLAR ROOFTOP POTENTIAL: A CASE STUDY <u>Abdul Wahab</u> ¹ , Dunia ¹ , Daniel Perez-Astudillo ¹ , Inas Hussain Mahir ¹ ¹ Qatar Environment and Energy Research Institute
14:30	SUSTAINABLE ENERGY TRANSITION IN SUB-SAHARAN AFRICA: MULTI-OBJECTIVE OPTIMIZATION FOR NET-ZERO ENERGY BUILDINGS <u>Mahamat Adoum Abdoulaye</u> ¹ , Sebastian Waita ¹ , Julius M. Mwabora ¹ , Cyrus Wabuge Wekesa ² , Hanki Kim ³ ¹ Department of Physics, University of Nairobi; ² School of Engineering, University of Eldoret; ³ Distributed Energy Team, Jeju Global Research Center, Korea Institute of Energy Research
14:45	POTENTIAL OF SOLAR FAÇADES FOR RESIDENTIAL BUILDINGS IN BRAZIL <u>Ísis Portolan dos Santos</u> ¹ , Bruna Gabriela Huth Teixeira ¹ , Luiza Xavier Pairé ¹ , Elaise Gabriel ¹ , Jenifer Godoy Daltrozo ² ¹ UFSM; ² UFRGS
15:00	BARRIERS TO THE IMPLEMENTATION OF DISTRIBUTED PHOTOVOLTAIC GENERATION IN THE NORTHEAST OF ARGENTINA <u>Luis Horacio Vera</u> ¹ , Lorena Ledesma ¹ , Claudia Alejandra Pilar ¹ , Manuel Caceres ¹ , Andres Danilo Firman ¹ , Alexis Raul Gonzalez Mayans ¹ ¹ UNNE
15:15	DEGRADATION STUDIES OF PHOTOVOLTAIC MODULES IN VARIOUS SYSTEM DEPLOYMENTS IN MINAS GERAIS, BRASIL <u>Denio Alves Cassini</u> ¹ , Vinicius Augusto Camatta Santana ¹ , Lawrence L. Kazmerski ² , Antonia Sônia A.C. Diniz ¹ ¹ Pontifícia Universidade Católica de Minas Gerais; ² University of Colorado Boulder



Solar World Congress 2025

SCIENTIFIC PROGRAMME

TUESDAY - 04/11/2025 - AFTERNOON

ORAL SESSION 11 - CSP SYSTEMS AND HYBRIDIZATION

Room: Sala de Reunião 4 (Room 4) | **Chair:** Prof. Dr. José M. Cardemil (PUC - Chile)

14:00	OPEN-SOURCE MODELING OF THERMAL HYBRIDIZATION IN CSP-BIOMASS COGENERATION: A BRAZILIAN SUGARCANE PLANT CASE STUDY <u>Benhur Azambuja Possatto</u> ¹ , <u>Walfrido Alonso Pippo</u> ² ¹ <i>Flextronics Instituto de Tecnologia</i> ; ² <i>Universidade Federal da Integração Latino-Americana</i>
14:15	IMPACT OF A PARTIAL SOLAR ECLIPSE ON THE DIRECT NORMAL IRRADIANCE AND FLUX DISTRIBUTION IN A SOLAR TOWER SYSTEM <u>Ricardo Filipe Carrão da Conceição</u> ¹ , <u>Jose Gonzalez-Aguilar</u> ¹ , <u>Manuel Romero</u> ¹ , <u>Germilly Reki Morais Barreto</u> ¹ ¹ <i>IMDEA Energy</i>
14:30	COMPARATIVE TECHNO-ECONOMIC ANALYSIS OF MOLTEN SALT VERSUS PARTICLE-BASED HYBRID PV-CSP PLANTS WITH ELECTRIC HEATERS AND SCO ₂ POWER BLOCKS <u>Salvatore Guccione</u> ¹ , <u>Rafael Guedez</u> ¹ ¹ <i>KTH Royal Institute of Technology</i>
14:45	DECARBONIZING INDUSTRIAL HEAT IN CENTRAL ASIA: A CASE STUDY ON PARABOLIC TROUGH COLLECTORS UNDER TASHKENT CONDITIONS <u>Azizboy Khaitmukhamedov</u> ¹ , <u>Dilshod Jalilov</u> ¹ , <u>Oybek Abdulkhaev</u> ¹ ¹ <i>Physical-Technical Institute of Uzbekistan Academy of Sciences</i>
15:00	SOL-GEL COBALT-FREE SPINEL OXIDE AS A SELECTIVE SOLAR ABSORBER: ACHIEVING HIGH EFFICIENCY WITHOUT CRITICAL RAW MATERIALS <u>Federico Turci</u> ¹ , <u>Andreas Schüler</u> ¹ ¹ <i>EPFL</i>
15:15	USING SECOND-LIFE ELECTRIC VEHICLE BATTERIES TO SECURE SUSTAINABLE ENERGY SUPPLY AND FOSTER SOCIO-ECONOMIC DEVELOPMENT IN REMOTE AMAZONIAN COMMUNITIES <u>Arne Jeppe</u> ¹ , <u>Alessandro Bezerra Trindade</u> ² , <u>Prof. Dr. Iury Bessa</u> ² , <u>Prof. Dr. Heike Proff</u> ¹ ¹ <i>University of Duisburg-Essen</i> ; ² <i>Universidade Federal do Amazonas</i>



Solar World Congress 2025

SCIENTIFIC PROGRAMME

WEDNESDAY - 05/11/2025 - MORNING

ORAL SESSION 12 - PERFORMANCE OF PV POWER PLANTS

Room: José de Alencar 1-3 (Auditorium) | **Chair:** Prof. Dr. Roberto Zilles (IEE-USP - Brazil)

09:00	APPLICATION OF ANALYTICAL MODELS TO ESTIMATE SOILING LOSSES IN PHOTOVOLTAIC SYSTEMS IN A SEMIARID REGION <u>José Janiere Silva de Souza</u> ¹ , <u>Paulo Cesar Marques de Carvalho</u> ² ¹ Instituto Federal do Ceará - Campus Cedro; ² Universidade Federal do Ceará
09:15	PERFORMANCE CHALLENGES OF ON-GRID SOLAR PV POWER PLANTS IN EMERGING MARKETS: A CASE OF BOTSWANA <u>Segolame Phegelo</u> ¹ , <u>Oboetswe Seraga Motsamai</u> ¹ , <u>Kevin Nhanye Nwaigwe</u> ¹ ¹ University of Botswana - Clean Energy Research Centre
09:30	PERFORMANCE OF REGRESSION TECHNIQUES IN PREDICTING ALTERNATING CURRENT POWER (ACP) IN SOLAR PLANTS: CASE STUDY AT IFPE PESQUEIRA <u>Manoel Henrique de Oliveira Pedrosa Filho</u> ¹ , <u>Ricardo Ataíde de Lima</u> ² , <u>José Oliveira Morais Neto</u> ² ¹ IFPE; ² UPE
09:45	IMPACT OF CALCULATION ASSUMPTIONS ON THE PERFORMANCE RATIO OF PHOTOVOLTAIC POWER PLANTS: INFLUENCE OF DISCARDING THE NIGHT PERIOD AND THE PERIOD OF EXTERNAL LIMITATIONS <u>Beatriz Souza Horn</u> Polytechnic Institute of Bragança - IPB and Portalegre Polyth Polytechnic University - IPP
10:00	PROPOSAL OF A METHODOLOGY FOR EVALUATING PHOTOVOLTAIC INVERTER PERFORMANCE USING A NOVEL PERFORMANCE RATIO <u>Andrei da Cunha Lima</u> ¹ , <u>Charles Schardong</u> ¹ , <u>Ricardo Bortolini</u> ¹ , <u>Frederico Schaf</u> ¹ , <u>Cassiano Rech</u> ¹ , <u>Lucas Bellinaso</u> ¹ , <u>Leandro Michels</u> ¹ ¹ Universidade Federal de Santa Maria
10:15	EXPECTATIONS VS. REALITY: A COMPREHENSIVE ANALYSIS OF UNDERPERFORMANCE IN BRAZILIAN UTILITY-SCALE SOLAR PLANTS <u>Lucas Rafael do Nascimento</u> ¹ , <u>André Luiz Prado Cechinel</u> ¹ , <u>João Paulo Alves Veríssimo</u> ¹ , <u>Gustavo Xavier de Andrade Pinto</u> ¹ , <u>Rafael Antunes Campos</u> ¹ , <u>Helena Flávia Naspolini</u> ¹ , <u>Ricardo Rüther</u> ¹ ¹ UFSC



Solar World Congress 2025

SCIENTIFIC PROGRAMME

WEDNESDAY - 05/11/2025 - MORNING

ORAL SESSION 13 - INNOVATIVE PV MODULES AND APPLICATIONS

Room: José de Alencar 4 (Room 5) | **Chair:** Prof. Dr. Lucimara Stolz Roman (UFPR - Brazil)

09:00	OVERCOMING THE DATA GAP OF FLOATING PHOTOVOLTAIC PLANTS: SYNTHETIC DATA GENERATION AND TRANSFER LEARNING TECHNIQUES <i>Leticia de Oliveira Santos¹, Breno Bezerra Freitas¹, Tarek AlSkaif², Paulo Cesar Marques de Carvalho¹</i> ¹ Universidade Federal do Ceará; ² Wageningen University & Research
09:15	LARGE SCALE WATER BASED ORGANIC PHOTOVOLTAICS <i>Júlia Ketzer Majewski¹, Maiara de Jesus Bassi¹, Lucimara Stolz Roman¹</i> ¹ Federal University of Paraná
09:30	MANGANESE DOPED ZINC SULPHIDE NANOPARTICLES FOR ENHANCED ORGANIC SOLAR CELL POWER CONVERSION EFFICIENCY <i>Mpilo Dlamini¹, Genene Tessema Mola²</i> ¹ North-West University; ² University of KwaZulu-Natal
09:45	COMPARATIVE ANALYSES BASED ON FIELD-MEASURED MODULE TEMPERATURES FROM A UTILITY-SCALE FLOATING PHOTOVOLTAIC SYSTEM <i>Renzo Amilcar Vargas Peralta¹, Givaldo dos Reis¹, Rodrigo P. Maruyama¹, Alex Renan Arrifano Manito¹, Marcelo Pinho Almeida¹, Roberto Zilles¹</i> ¹ Universidade de São Paulo (USP)
10:00	ENHANCING IRRIGATION RESERVOIRS THROUGH FLOATING PHOTOVOLTAIC: A SATELLITE MAPPING-BASED MULTIFUNCTIONAL WATER-ENERGY STRATEGY <i>Andrés Osvaldo Benito¹, Esteban Lannutti², Pedro Castro Verdezoto³</i> ¹ Universidad Tecnológica Nacional, Facultad Regional Mendoza; ² Instituto Argentino de Nivología, Glaciología y Ciencias Ambientales (IANIGLA); ³ Universidad de Guayaquil, Facultad de Ingeniería Industrial
10:15	ANALYSIS OF ORGANIC PHOTOVOLTAICS APPLICATION IN TUBELIKE BUS STATIONS OF CURITIBA: DEGRADATION, SEASONAL AND SHADING EFFECTS <i>Júlia Ketzer Majewski¹, Anna Gabriella Tempesta¹, Lucimara Stolz Roman¹</i> ¹ Federal University of Paraná



Solar World Congress 2025

SCIENTIFIC PROGRAMME

WEDNESDAY - 05/11/2025 - MORNING

ORAL SESSION 14 - SATELLITE DATA & DATABASE VALIDATION

Room: Sala de Reunião 1 (Room 1) | **Chair:** Dr. Arttu Tuomiranta (TotalEnergies - France)

09:00	FORECASTING DIFFUSE SOLAR IRRADIATION <u>John Boland</u> <u>Adelaide University</u>
09:15	EVALUATION OF THE CAMS GRIDDED SOLAR RADIATION MAP IN BRAZIL <u>João Marcos Oliveira de Senna Caaetê Chacon</u> ¹ , <u>Diego Rodrigues de Miranda</u> ² , <u>Olga de Castro Vilela</u> ¹ , <u>Faiza Azam</u> ² ¹ Universidade Federal de Pernambuco; ² DLR Institute of Networked Energy Systems
09:30	QUANTIFYING AEROSOL AND CLOUD EFFECTS ON SOLAR RADIATION VIA ALL-SKY IMAGERY AND 3D CLOUD MODELING <u>Andreas Kazantzidis</u> ¹ , <u>Stavros-Andreas Logothetis</u> ¹ , <u>Panagiotis Tzoumanikas</u> ¹ , <u>Orestis Panagopoulos - Kontostavlakis</u> ¹ ¹ University of Patras
09:45	DEVELOPMENT OF A HYBRID MODEL FOR SOILING ANALYSIS IN PHOTOVOLTAIC SYSTEMS UNDER DIFFERENT CLIMATIC CONDITIONS CONSIDERING RAINFALL AND TURBIDITY DATA <u>Gabriel Caminha de Araujo Costa</u> ¹ , <u>João Pedro Costa Barnabé</u> ¹ , <u>João Frederico Souza de Paula</u> ¹ , <u>João Lucas de Souza Silva</u> ¹ , <u>Gustavo Fraidenaich</u> ¹ , <u>Tárcio André dos Santos Barros</u> ¹ ¹ Universidade Estadual de Campinas
10:00	BRAZILIAN DATABASE FOR SOLAR IRRADIATION ASSESSMENT <u>Rodrigo Santos Costa</u> ¹ , <u>Andre Rodrigues Goncalves</u> ¹ , <u>Antonio Mauricio Zarzur</u> ¹ , <u>Ricardo Almeida de Siqueira</u> ¹ , <u>Vinicius Roggerio da Rocha</u> ¹ , <u>Enio Bueno Pereira</u> ¹ , <u>Marcelo Pizzuti Pes</u> ¹ , <u>Guilherme Baggio Martins Machado</u> ¹ , <u>Madeleine Sánchez Gácita Casagrande</u> ¹ , <u>Fernando Ramos Martins</u> ² ¹ National Institute for Space Research; ² Federal University of São Paulo
10:15	ASSESSING THE ACCURACY OF PUBLICLY AVAILABLE SPECTRAL IRRADIANCE DATA FROM NSRDB <u>Arttu Tuomiranta</u> ¹ , <u>Etienne Drahi</u> ¹ ¹ TotalEnergies



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SCIENTIFIC PROGRAMME

WEDNESDAY - 05/11/2025 - MORNING

ORAL SESSION 15 - ENERGY MARKETS AND SYSTEM INTEGRATION

Room: Sala de Reunião 2 (Room 2) | **Chair:** Prof. Dr. Rohith Krishnan Bala Krishnan (HS Nordhausen - Germany)

09:00	SOLAR EXPANSION IN CEARÁ: ANALYSIS OF LICENSE ISSUANCE AND IMPLICATIONS FOR REGIONAL ENERGY DEVELOPMENT (2022-2024) <i>Marilangela da Silva Sobrinho¹, Wasley Maciel Pinheiro¹, Mayara Jessica Cavalcante Freitas², Ademar Almeida de Sousa¹, Rosane Moraes Falcão Queiroz¹</i> ¹ SEMACE; ² Instituto Federal de Educação, Ciência e Tecnologia do Ceará-IFCE
09:15	SOLAR THERMAL ENERGY FOR INDUSTRIAL PROCESSES: INSIGHTS FROM CUENCA, ECUADOR <i>Andres Montero Izquierdo¹, Willian Carrion Chamba¹, Wilson Murillo Torres¹, M.R. Pelaez-Samaniego¹, Andreas Häberle², Iván Patricio Acosta Pazmiño¹</i> ¹ Universidad de Cuenca; ² Eastern Switzerland University of Applied Sciences
09:30	A POST-EVALUATION OF SOCIAL DIMENSIONS OF BIPV ADOPTION IN CASE STUDIES BUILDINGS ACROSS DIVERSE EUROPEAN CONTEXTS <i>Tahmineh Akbarinejad¹, Chiara Bertolin¹, Nuria Martin Chivelet², Gilles Desthieux³, Paolo Corti⁴, Björn Rau⁵, Samira Jama Aden⁵, Pierluigi Bonomo⁴, Gabriele Lobaccaro¹</i> ¹ Norwegian University of Science and Technology; ² Photovoltaic Unit, CIEMAT; ³ University of Applied Sciences and Art (HES-SO); ⁴ University of Applied Sciences and Arts of Southern Switzerland (SUPSI); ⁵ Helmholtz-Zentrum Berlin für Materialien und Energie (HZB)
09:45	STOCHASTIC TIME SERIES FORECASTING APPROACH USING MARKOV CHAIN FOR ROBUST ENERGY SYSTEM PLANNING <i>Rohith Krishnan Bala Krishnan¹, Sebastian Voswinckel¹, Theresa Reinhardt¹, Viktor Wesselak¹, Christoph Schmidt¹</i> ¹ Institut für Regenerative Energietechnik (Hochschule Nordhausen)
10:00	PHOTOVOLTAIC HOSTING CAPACITY ASSESSMENT OF LOW-VOLTAGE GRIDS IN NORTHEAST ARGENTINA <i>Alexis Raul Gonzalez Mayans¹, Jonathan Dario Masetto¹, Giuliano Arns Rampinelli², Carlos Alberto Cadena³, Manuel Caceres¹, Andres Danilo Firman¹</i> ¹ Universidad Nacional del Nordeste; ² Universidade Federal de Santa Catarina; ³ Universidad Nacional de Salta
10:15	TOWARDS BETTER ENERGY TRANSITION MODELLING IN PACIFIC ISLAND COUNTRIES AND TERRITORIES <i>Edoardo Santagata¹, Anna Bruce¹, Iain MacGill¹</i> ¹ The University of New South Wales



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SCIENTIFIC PROGRAMME

WEDNESDAY - 05/11/2025 - MORNING

ORAL SESSION 16 - MICROGRIDS

Room: Sala de Reunião 3 (Room 3) | **Chair:** Prof. Dr. Sebastian Waita (University of Nairobi - Kenya)

09:00	OPTIMIZING SMART HOME MICROGRID THROUGH DEMAND RESPONSE BASED ON MAMDANI FUZZY INFERENCE SYSTEM <u>Christelle Arielle Mbouteu Megaptche</u> ¹ , Sebastian Waita ¹ , Peter Moses Musau ² , Bernard Odhiambo Aduda ¹ ¹ University of Nairobi; ² South Eastern Kenya University
09:15	COMPARATIVE ASSESSMENT OF DISPATCH STRATEGIES FOR OPTIMIZING MICROGRID OPERATION FOR HYDROGEN PRODUCTION <u>Danielly Norberto Araújo</u> ¹ , Gabriel Lucas Nascimento Silva ¹ , Danilo Pinchemel Cardoso Filho ¹ , Heloísa Althoff ² , André Fonseca ¹ ¹ SENAI CIMATEC; ² Petrogal Brasil
09:30	GRID IMPACT OF ELECTRIC VEHICLE AND SOLAR INTEGRATION: A CASE STUDY FROM STOCKHOLM COUNTY <u>Priscila Costa Nascimento</u> ¹ , Salvatore Guccione ¹ , Silvia Trevisan ¹ ¹ KTH Royal Institute of Technology
09:45	EXPERIMENTAL EVALUATION OF MICROGRIDS AS AN ALTERNATIVE FOR THE IMPROVEMENT OF POWER SUPPLY CONTINUITY IN SECONDARY DISTRIBUTION SYSTEMS <u>Pedro Ferreira Torres</u> ¹ , Guilherme da Silva Andrade ¹ , Teddy Arturo Flores Meléndez ¹ , João Tavares Pinho ¹ , Roberto Zilles ¹ ¹ Universidade de São Paulo
10:00	SIMULATION OF AN OFF-GRID ENERGY SYSTEM IN THE AMAZON: DEVELOPMENT OF A PYTHON-BASED OPEN-SOURCE TOOL FOR DECARBONIZATION THROUGH HYDROGEN AND COMPARISON WITH HOMER <u>Moritz End</u> ¹ , Daniel Odilio dos Santos ¹ , Thorsten Schneiders ¹ , Aline Kirsten Vidal de Oliveira ¹ , Helena Flávia Napolini ¹ , Ricardo Rütther ¹ ¹ University of Applied Science Cologne
10:15	THE BARRIERS TO 100% RENEWABLE ISOLATED MINIGRIDS: WHY COMBUSTION GENERATORS STILL DOMINATE? <u>Daniel Odilio dos Santos</u> ¹ , Helena Flávia Napolini ¹ , Lucas Rafael do Nascimento ¹ , Amanda Mendes Ferreira Gomes ¹ , Ricardo Rütther ¹ ¹ Universidade Federal de Santa Catarina



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SCIENTIFIC PROGRAMME

WEDNESDAY - 05/11/2025 - MORNING

ORAL SESSION 17 - PVT & HYBRID SOLAR SYSTEMS

Room: Sala de Reunião 4 (Room 4) | **Chair:** Prof. Dr. José M. Cardemil (PUC - Chile)

09:00	DESIGN AND EVALUATION OF A NOVEL SOLAR-DRIVEN SUSTAINABLE POLYGENERATION SYSTEM BASED ON H ₂ O-LIBR WORKING FLUID <u>Javier Alejandro Hernández Magallanes¹</u> , <u>Diana Alicia de Santiago Murillo¹</u> , <u>Salvador Tututi Ávila¹</u> , <u>Sanal Kozhiparambil¹</u> ¹ Universidad Autónoma de Nuevo León
09:15	REPRESENTATIVENESS OF AN EXPERIMENTAL PHOTOVOLTAIC-THERMAL PVT SYSTEM PROTOTYPE IN RELATION TO A RESIDENTIAL PVT SYSTEM OPERATING UNDER REAL CONDITIONS <u>Rafael Pereira da Cruz¹</u> , <u>Emanuel Moreira Palierini Ibrahim¹</u> , <u>Júlio César Passos¹</u> ¹ Universidade Federal de Santa Catarina
09:30	PHYSICAL MODELING OF PHOTOVOLTAIC-THERMAL COLLECTORS <u>Christian Wagner¹</u> , <u>Lukas Gaisberger¹</u> , <u>Bernhard Zettl¹</u> ¹ University of Applied Sciences Upper Austria
09:45	IMPROVING THE CHARACTERISTICS OF PHASE CHANGE MATERIAL FOR USE IN COOLING BIFACIAL SOLAR PANELS: A PRELIMINARY STUDY <u>Sam Honey¹</u> , <u>Darsh Shah¹</u> , <u>Bethan Charles¹</u> , <u>Maria Valero¹</u> , <u>Hind Saidani-Scott¹</u> ¹ University of Bristol
10:00	ASSESSING THE PERFORMANCE OF SOLAR-BASED FAÇADE SOLUTIONS: A 2-YEAR EXPERIMENTAL STUDY <u>Asier Sanz Martínez¹</u> , <u>Raquel Fuente²</u> ¹ TECNALIA, Basque Research and Technology Alliance (BRTA); ² Applied Mathematics, Faculty of Engineering, University of the Basque Country UPV/EHU
10:15	THERMAL AND ELECTRICAL CHARACTERIZATION OF A NOVEL SPECTRAL BEAM SPLITTING LOW-CONCENTRATING PHOTOVOLTAIC THERMAL COLLECTOR <u>Rafael Alejandro García Ramos¹</u> , <u>Carlos Ivan Rivera Solorio¹</u> , <u>Miguel Angel Gijón Rivera¹</u> , <u>Christos N. Markides²</u> , <u>Chandan Pandey²</u> ¹ Tecnológico de Monterrey; ² Imperial College London



Solar World Congress 2025

SCIENTIFIC PROGRAMME

WEDNESDAY - 05/11/2025 - AFTERNOON

ORAL SESSION 18 - RELIABILITY OF PV SYSTEMS

Room: José de Alencar 4 (Room 5) | **Chair:** Prof. Dr. Adriano Moehlecke (PUC-RS - Brazil)

14:00	LIFESPAN OF PV SYSTEMS OPERATING FOR OVER 30 YEARS IN HIGH-LATITUDE REGIONS <u>André Filipe Rodrigues Augusto</u> ¹ , Emmanouil Psimopoulos ¹ , Chiara Barretta ² , Belferkous Brahim Anis ² , Gernot Oreski ² ¹ Dalarna University; ² Polymer Competence Center Leoben
14:15	PERFORMANCE DEGRADATION OF MONO- AND MULTICRYSTALLINE SILICON PV MODULES IN RURAL GRID-CONNECTED SYSTEMS IN SOUTHERN BRAZIL <u>Adriano Moehlecke</u> ¹ , Izete Zanesco ¹ , João Victor Zanatta Britto ¹ , Taila Cristiane Policarpi ¹ , Moussa Ly ¹ , Felipe Chini de Freitas ¹ , Lucas Teixeira Caçapietra Pires da Silva ¹ ¹ PUCRS - Pontifical Catholic University of Rio Grande do Sul
14:30	LONG-TERM PERFORMANCE ASSESSMENT OF MULTIPLE PHOTOVOLTAIC TECHNOLOGIES NEAR THE EQUATOR <u>Miguel Ángel Sevillano Bendezú</u> ¹ , Luis Angel Conde Mendoza ² , Jose Ruben Angulo Abanto ² , Juan de la Casa Higuera ³ , José María Ripalda ¹ , Jan Amaru Palomino Töfflinger ² ¹ Instituto de Micro y Nanotecnología; ² Pontificia Universidad Católica del Perú; ³ Universidad de Jaén
14:45	HOTSPOT PATTERNS IN PHOTOVOLTAIC MODULES: CLASSIFICATION, IMPACTS AND MONITORING STRATEGIES <u>Vinicius Augusto Camatta Santana</u> ¹ , Denio Alves Cassini ¹ , Lawrence L. Kazmerski ² , Antonia Sônia A.C. Diniz ¹ , Cláudio Dias Campos ¹ ¹ Pontifícia Universidade Católica de Minas Gerais; ² University of Colorado Boulder
15:00	LIFETIME ASSESSMENT OF PV INVERTERS USING MARCO-STARKEY THEORY AND NONLINEAR DAMAGE ACCUMULATION <u>Andrei Carvalho Ribeiro</u> ¹ , Jorge Sebastian Morocho Jimenez ¹ , José Cândido Silveira Santos Filho ¹ , Pedro José dos Santos Neto ¹ , João Pedro Carvalho Silveira ¹ , Tércio André dos Santos Barros ¹ ¹ UNICAMP
15:15	POST-INSTALLATION EXPERIENCES OF RESIDENTIAL GRID-CONNECTED ROOFTOP PV USERS IN INDIA: AN EMPIRICAL SURVEY <u>Pratik Nagesh Joshi</u> ¹ , Anand Bhalchandra Rao ² , Rangan Banerjee ³ ¹ Ashank Desai Centre for Policy Studies (ADCPS), Indian Institute of Technology Bombay; ² Centre for Technology Alternatives for Rural Areas (CTARA), Indian Institute of Technology Bombay; ³ Department of Energy Science and Engineering (DESE), Indian Institute of Technology Delhi



Solar World Congress 2025

SCIENTIFIC PROGRAMME

WEDNESDAY - 05/11/2025 - AFTERNOON

ORAL SESSION 19 - SOLAR RESOURCES, VARIABILITY, AND MODELING

Room: Sala de Reunião 1 (Room 1) | **Chair:** Dr. Alfred Jean-Philippe Lauret (University of La Réunion - France)

14:00	CLEAR SKY DETECTION MODELS: A COMPARATIVE ANALYSIS <u>Koryandder de Souza Ventura</u> ¹ , <u>Manoel Henrique de Oliveira Pedrosa Filho</u> ¹ ¹ Instituto Federal de Pernambuco - Campus Pesqueira
14:15	ESTIMATING DAY-AHEAD SOLAR FORECAST ERRORS FROM SITE-SPECIFIC VARIABILITY <u>Alfred Jean-Philippe Lauret</u> ¹ , <u>Josselin Le Gal La Salle</u> ¹ , <u>Mathieu David</u> ¹ ¹ University of La Réunion
14:30	ASSESSMENT OF THE ALBEDO INFLUENCE ON THE PERFORMANCE OF SOLAR TRANSPOSITION MODELS <u>Inti Piccioli</u> ¹ , <u>Agustín Laguarda</u> ¹ , <u>Gonzalo Abal</u> ¹ ¹ Laboratorio de Energía Solar, Universidad de la República
14:45	IMPACT OF DIFFUSE RADIATION MODELING ON REAR/FRONT RATIO ESTIMATION FOR BIFACIAL PV SYSTEMS <u>João Victor Furtado Frazão de Medeiros</u> ¹ , <u>Janis Joplim Bezerra Galdino</u> ¹ , <u>Rinaldo Oliveira de Melo</u> ¹ , <u>Rodrigo Alonso-Suárez</u> ² , <u>Olga de Castro Vilela</u> ¹ ¹ Federal University of Pernambuco; ² Universidad de la República
15:00	OPTIMAL SITE SELECTION FOR SOLAR POWER PLANTS THROUGH HYBRID MULTI-CRITERIA DECISION-MAKING <u>Aminreza Neshat</u> ¹ , <u>Masoumeh Abed</u> ² , <u>Mohammad Rahnama</u> ¹ ¹ LaSalle College Vancouver, Vancouver, BC, Canada; ² Department of GIS/RS, Science and Research Branch, Islamic Azad University, Tehran, Iran
15:15	PERFORMANCE ANALYSIS OF ADJUSTABLE-TILT TILTED SINGLE-AXIS VERSUS HORIZONTAL SINGLE-AXIS TRACKERS: A BRAZILIAN PV PLANT CASE STUDY <u>Gustavo Fraidenraich</u> ¹ , <u>Eslam Mahmoudi</u> ¹ , <u>João Lucas de Souza Silva</u> ¹ , <u>Denis G. Fantinato</u> ¹ , <u>Tárcio André dos Santos Barros</u> ¹ ¹ Faculdade de Engenharia Elétrica e de Computação da UNICAMP



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SCIENTIFIC PROGRAMME

WEDNESDAY - 05/11/2025 - AFTERNOON

ORAL SESSION 20 - CIRCULAR ECONOMY AND LCA

Room: Sala de Reunião 2 (Room 2) | **Chair:** Prof. Dr. Vinnya Freitas Soares (UNIFOR - Brazil)

14:00	RECYCLING OF SOLAR PANELS: CHALLENGES AND SOLUTIONS FOR A SUSTAINABLE FUTURE <i>Marcio William Celestino dos Santos¹, William Neves da Silva², Vinnya Freitas Soares¹, Wanessa Maria Araújo Paulo¹, Francisca Aline Pereira Maciel Oliveira¹, Pedro Ribeiro Neris¹</i> ¹ Universidade de Fortaleza - UNIFOR; ² Universidade Federal de Santa Catarina - UFSC
14:15	LIFE CYCLE CARBON FOOTPRINT ASSESSMENT OF A LOW-CARBON SOLAR PV TRACKER <i>André Martins Silveira¹, Henrique Leonardo Maranduba¹, Mohit Gupta¹</i> ¹ Nextracker Inc.
14:30	PERFORMANCE OF SECOND LIFE PV MODULES: TECHNICAL AND EXPERIMENTAL ANALYSIS <i>Sabrina Rodrigues Ebert¹, Anelise Medeiros Pires¹, Marinna Pivatto¹, Marília Braga¹, João Paulo Alves Veríssimo¹, Thamires Alves Silva¹, Helena Flávia Naspolini¹, Ricardo Rüther¹</i> ¹ Fotovoltaica/UFSC Laboratory
14:45	FROM BUILDING TO DISTRICT: WHOLE-LIFE GLOBAL WARMING POTENTIAL OF A LOW-ENERGY RESIDENTIAL BLOCK AND SURROUNDING SITE WORKS <i>Wan Xiaoqi¹, Natalia Muszynska¹, Maryam Fakhari¹, Ricardo Bernardo¹</i> ¹ Lund University
15:00	ECONOMIC FEASIBILITY OF PV SELF-CONSUMPTION SCENARIOS IN PERU: A MULTI-REGIONAL ANALYSIS USING EXPERIMENTAL PERFORMANCE DATA <i>Vlada Pleshcheva¹, Muriel Berthomieu¹, Jose Ruben Angulo Abanto¹, Rafael Jesus Vidal Coral¹, Jan Amaru Palomino Töfflinger¹</i> ¹ Pontificia Universidad Católica del Perú
15:15	ANALYSIS OF GEOGRAPHICAL SMOOTHENING AND VARIABILITY REDUCTION IN A CLUSTER OF SOLAR PV PLANTS <i>Rhythm Singh¹, Manoj Singh Bisht¹</i> ¹ Indian Institute of Technology Roorkee



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SCIENTIFIC PROGRAMME

WEDNESDAY - 05/11/2025 - AFTERNOON

ORAL SESSION 21 - URBAN & DISTRICT ENERGY APPLICATIONS

Room: Sala de Reunião 3 (Room 3) | **Chair:** Prof. Dr. Caroline Hachem-Vermette (Concordia University - Canada)

14:00	ENERGY EFFICIENCY IN URBAN SPACES: A COMPARATIVE ANALYSIS BETWEEN TRADITIONAL PHOTOVOLTAIC SYSTEMS AND SOLAR TREES <u>Lohane Barcelos Palaoro</u> ¹ , Ana Carolina Calenzani Marinho ¹ , Anderson Azevedo Fraga ¹ , Luiz Virgílio Bozzi Aranda ² , Henrique Ferrario Traba ¹ , Helder Roberto de Oliveira Rocha ¹ , Marcelo Eduardo Vieira Segatto ¹ ¹ Federal University of Espírito Santo; ² Federal Institute of Espírito Santo
14:15	SOLAR-ENABLED COMMUNITY ENERGY SYSTEMS: A MODULAR NEIGHBORHOOD APPROACH TO NET-POSITIVE NEIGHBORHOODS <u>Caroline Hachem-Vermette</u> Concordia University
14:30	DIGITALIZING SOLAR ENERGY INTEGRATION FOR SUSTAINABLE URBAN PRECINCT REDEVELOPMENT <u>Chengyang Liu</u> ¹ , Rebecca Yang ² , Chen Liu ¹ , Ali Moradi Amani ¹ , Yusen Zhao ¹ , Jiatong Zhang ¹ , Nirajan Shiwakoti ¹ ¹ RMIT University; ² The University of Melbourne
14:45	GLOBAL WARMING POTENTIAL OF CITY DISTRICTS - A CASE STUDY IN SWEDEN Jorik Wolters ¹ , Simon Kallioinen ² , Maryam Fakhari ¹ , Johan Holmqvist ³ , <u>Luís Ricardo Pantoja Coutinho Bernardo</u> ¹ ¹ Lund University; ² Fojab Architects; ³ The Swedish Environmental Institute
15:00	INTEGRATION OF PHOTOVOLTAIC SYSTEMS IN UNIVERSITY BUILDINGS: A RETROFIT PROJECT AT THE TECHNOLOGY CENTER OF THE FEDERAL UNIVERSITY OF RIO DE JANEIRO <u>Annelys Machado Schetinger</u> ¹ , Fernanda Ferreira Metello de Oliveira ¹ , Nathalia Gomes de Araújo ¹ , Isabella Teixeira Linhares ¹ , Rafael Barbosa Guimarães Monteiro ¹ , Robson Francisco da Silva Dias ¹ ¹ Federal University of Rio de Janeiro
15:15	BUILDING- AND DISTRICT-LEVEL RESILIENCE WITH SOLAR PV AND STORAGE: INSIGHTS FROM SWEDISH PROSUMERS <u>Annisa Dhini Septi Kinasih</u> ¹ , Amir Vadiee ¹ , Allan Hawas ¹ , Fredrik Wallin ¹ ¹ Mälardalen University



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SCIENTIFIC PROGRAMME

WEDNESDAY - 05/11/2025 - AFTERNOON

ORAL SESSION 22 - BUILDINGS, HEAT PUMPS & ENERGY MANAGEMENT

Room: Sala de Reunião 4 (Room 4) | **Chair:** Prof. Dr. Klaus Vajen (University of Kassel - Germany)

14:00	SOLAR HEATING WITH SEASONAL STORAGE IN BRACHT: CONSTRUCTION, INITIAL OPERATION AND NIGHT-TIME COOLING AGAINST STAGNATION <u>Christoph Schmelzer</u> ¹ , <u>Paul Volk</u> ¹ , <u>Oleg Kusyy</u> ¹ , <u>Janybek Orozaliev</u> ¹ , <u>Ulrike Jordan</u> ¹ , <u>Klaus Vajen</u> ¹ ¹ University of Kassel, Institute for Thermal Energy Engineering
14:15	DAY-AHEAD PREDICTIVE CONTROL OF HEAT PUMP AND ENERGY STORAGE SYSTEMS WITH INTEGRATED PHOTOVOLTAICS <u>Mustapha Habib</u> ¹ , <u>Qian Wang</u> ¹ , <u>Katharina Lisa Steib</u> ¹ ¹ KTH Royal Institute of Technology
14:30	DECARBONIZING BUILDING HEATING THROUGH SOLAR THERMAL ENERGY AND LATENT HEAT STORAGE <u>Halime Omur</u> ¹ , <u>Khamid Mahkamov</u> ² , <u>Gülfeza Kardas</u> ¹ , <u>İbrahim SÜDAŞ</u> ³ , <u>Burcu Koçak</u> ¹ , <u>Filiz HOPLAMAZ</u> ¹ , <u>Fatma Alma</u> ¹ , <u>Irina Mahkamov</u> ² ¹ Çukurova University; ² Northumbria University; ³ Barış Enerji Sistemleri A.Ş.
14:45	TECHNO-ECONOMIC EVALUATION OF PVT-SOURCED HEAT PUMP SYSTEMS: CAN SOLAR COMPETE WITH AIR AND GROUND IN COLD CLIMATES? <u>Francisco Beltran</u> ¹ , <u>Nelson Sommerfeldt</u> ¹ , <u>Hatef Madani</u> ¹ ¹ KTH Royal Institute of Technology
15:00	MODELLING AND IMPLEMENTATION OF ICE STORAGE SYSTEMS: CASE STUDIES AND APPLICATIONS <u>Nayrana Daborer-Prado</u> ¹ , <u>Christian Wagner</u> ¹ ¹ University of Applied Sciences Upper Austria
15:15	MAKE EVERY KILOWATT COUNT: MODELLING SOLAR POWER INTEGRATION WITH THERMAL STORAGE AND HEATING ELECTRIFICATION <u>Ueli Schilt</u> ¹ , <u>Somesh Vijayananda</u> ¹ , <u>Sarah Schneeberger</u> ¹ , <u>Santhosh Iyyakkunne</u> ¹ , <u>Pascal Marc Vecsei</u> ¹ , <u>Philipp Schuetz</u> ¹ ¹ Competence Centre for Thermal Energy Storage, School of Engineering and Architecture, Lucerne University of Applied Sciences



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SCIENTIFIC PROGRAMME

THURSDAY - 06/11/2025 - MORNING

ORAL SESSION 23 - MODELING & SIMULATION OF SOLAR SYSTEMS I

Room: José de Alencar 1-3 (Auditorium) | **Chair:** Prof. Dr. Patricio Valdivia-Lefort (USACH - Chile)

09:00	DYNAMIC MODEL PARAMETER ESTIMATION IN PHOTOVOLTAIC MODULES <u>Patricio Valdivia-Lefort</u> USACH
09:15	HIGH FIDELITY MODEL OF A THREE-PHASE MULTI-STRING SOLAR INVERTER <u>Julio Romel Martinez Bolanos</u> ¹ , <u>Jose Cesar de Souza Almeida Neto</u> ² , <u>Alex Renan Arrifano Manito</u> ¹ , <u>Marcelo Pinho Almeida</u> ¹ , <u>Gilberto Figueiredo Pinto Filho</u> ³ , <u>Pedro Ferreira Torres</u> ¹ , <u>João Tavares Pinho</u> ¹ , <u>Roberto Zilles</u> ¹ ¹ University of Sao Paulo; ² Mackenzie Presbyterian University; ³ Fluminense Federal University
09:30	MACHINE LEARNING MODELS FOR PHOTOVOLTAIC MODULES OPERATING TEMPERATURE ESTIMATION IN SEMIARID CLIMATE <u>Antonio Wellington Dantas da Costa</u> ¹ , <u>Leticia de Oliveira Santos</u> ¹ , <u>Paulo Cesar Marques de Carvalho</u> ¹ ¹ Federal University of Ceará
09:45	COMPARISON OF TEMPERATURE MODELS FOR BIFACIAL PHOTOVOLTAIC MODULES IN GERMANY AND BRAZIL <u>Oliver Pfeiffer</u> ¹ , <u>Aline Kirsten Vidal de Oliveira</u> ¹ , <u>Marília Braga</u> ² , <u>Helena Flávia Napolini</u> ² , <u>Ulf Blieske</u> ¹ , <u>Ricardo Rüther</u> ² ¹ TH Köln; ² Universidade Federal de Santa Catarina
10:00	THERMAL MODELING OF BIFACIAL PV MODULES ON HIGH-ALBEDO SURFACES <u>Aline Kirsten Vidal de Oliveira</u> ¹ , <u>Marília Braga</u> ¹ , <u>Isadora Maciel Queiroz</u> ¹ , <u>Helena Flávia Napolini</u> ¹ , <u>Ricardo Rüther</u> ¹ ¹ Universidade Federal de Santa Catarina
10:15	PHOTOVOLTAIC SENSITIVITY ANALYSIS OF DOUBLE-DIODE MODEL <u>Gustavo Henrique de Paula Santos</u> ¹ , <u>Elmer Pablo Tito Cari</u> ² ¹ Federal Institute of Education, Science and Technology of Sao Paulo; ² University of Sao Paulo



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SCIENTIFIC PROGRAMME

THURSDAY - 06/11/2025 - MORNING

ORAL SESSION 24 - THERMAL COMFORT & DAYLIGHT

Room: José de Alencar 4 (Room 5) | **Chair:** Prof. Dr. Ana Lígia Papst de Abreu (IFSC - Brazil)

09:00	LINKING INSOLATION SHADOW RATIO WITH UTCI: MORPHOLOGICAL INSIGHTS INTO OUTDOOR THERMAL COMFORT <u>Song Jie</u> ¹ , <u>Liu Yu</u> ² , <u>Ren Juan</u> ³ , <u>Liu Bo</u> ⁴ , <u>Yupeng Jiang</u> ¹ , <u>Yirong Li</u> ² , <u>Lei Zhuo</u> ² , <u>Siyi Liu</u> ² ¹ School of Mechanical Engineering, Northwestern Polytechnical University; ² School of Mechanics and Transportation Engineering, Northwestern Polytechnical University; ³ School of Architecture, Chang'an University; ⁴ School of Architecture, Xi'an University of Architecture and Technology
09:15	SUNLIGHT AT HOME: EXPLORING PREFERENCES AND THEIR IMPACT ON BUILDING DESIGN <u>Agnieszka Czachura</u> , <u>Niko Gentile</u> , <u>Jouri Kanters</u> , <u>Maria Wall</u> Lund University
09:30	MODEL PREDICTIVE CONTROL FOR SOLAR BLINDS: BALANCING PHOTOVOLTAIC POWER GENERATION AND VISUAL COMFORT <u>Nima Monghasemi</u> ¹ , <u>Mohammad Mansourian</u> ² , <u>Amir Vadiie</u> ¹ , <u>Avinash Renuke</u> ¹ , <u>Annisa Dhini Septi Kinasih</u> ¹ ¹ Mälardalen University; ² Azad University
09:45	STANDARDIZED SYSTEM OF THREE-DIMENSIONAL STEEL OR ALUMINUM PHOTOVOLTAIC AND PHOTOTHERMAL STRUCTURES <u>Perla Yanet Rosales Medina</u> ¹ , <u>Yuri Nahmad Molinari</u> ¹ , <u>Sylvia Meimaridou Rola</u> ² ¹ Universidad Autónoma de San Luis Potosí; ² Universidad Federal de Rio de Janeiro
10:00	IMPACT OF BUILDING MORPHOLOGICAL INDICATORS ON SOLAR POTENTIAL: VALIDATION ANALYSIS OF VERTICAL OBSTRUCTION FACTOR (VOF) <u>Yirong Li</u> ¹ , <u>Liu Yu</u> ¹ , <u>Lei Zhuo</u> ¹ , <u>Siyi Liu</u> ¹ , <u>Song Jie</u> ² ¹ Northwestern Polytechnical University; ² Northwestern Polytechnical University
10:15	MULTI-OBJECTIVE OPTIMIZATION OF RESIDENTIAL BUILDING DESIGN FOR IMMIGRANT RESETTLEMENT IN THE TIBETAN PLATEAU: A CASE STUDY OF ANKANG COMMUNITY <u>Siyi Liu</u> ¹ , <u>Liu Yu</u> ¹ , <u>Lei Zhuo</u> ¹ , <u>Yirong Li</u> ¹ , <u>Song Jie</u> ² , <u>Ling Ma</u> ³ ¹ Northwestern Polytechnical University; ² Northwestern Polytechnical University; ³ Power China Northwest Engineering Corporation Limited



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SCIENTIFIC PROGRAMME

THURSDAY - 06/11/2025 - MORNING

ORAL SESSION 25 - UNCERTAINTY & MEASUREMENT ACCURACY IN SOLAR RESOURCE

Room: Sala de Reunião 1 (Room 1) | **Chair:** Dr. Samira Azevedo (ISI-ER - Brazil)

09:00	VALIDATION OF AN ERYTHEMA-WEIGHTED UV MODEL USING BROADBAND SOLAR IRRADIANCE MEASUREMENTS FROM ELEVEN U.S. SITES <u>Agustín Laguarda</u> ¹ , Aron Habte ² , Gonzalo Abal ¹ , Manajit Sengupta ² ¹ Universidad de la República; ² National Renewable Energy Laboratory
09:15	EVALUATION OF AEROSOL PRODUCTS TO FEED BRAZIL'S SOLAR ENERGY RESOURCE ASSESSMENT <u>Fernando Ramos Martins</u> ¹ , Eduardo Weide Luiz ¹ , Andre Rodrigues Goncalves ² , Rodrigo Santos Costa ² , Enio Bueno Pereira ² ¹ Universidade Federal de São Paulo; ² Instituto Nacional de Pesquisas Espaciais
09:30	SPECTRORADIOMETER INTER-COMPARISON OF PAR, UV AND ALL WAVELENGTH WITH QUANTUM SENSORS <u>Daniele Conceição dos Santos</u> ¹ , <u>Sylvio Luiz Mantelli Neto</u> ¹ , Marília Braga ¹ , Thamires Alves Silva ¹ , Ricardo Rüther ¹ ¹ Fotovoltaica UFSC
09:45	UNCERTAINTIES IN PHOTOSYNTHETICALLY ACTIVE RADIATION (PAR) EXPERIMENTAL DATA COLLECTED IN BRAZIL AND SPAIN <u>Andre Rodrigues Goncalves</u> ¹ , Fernando Ramos Martins ² , Rodrigo Santos Costa ¹ , Rita Ximena Valenzuela Balderrama ³ , Luiz Fernando Zarzalejo ³ , Guilherme Baggio Martins Machado ¹ , Marcelo Pizzuti Pes ¹ ¹ INPE; ² UNIFESP; ³ CIEMAT
10:00	TEMPORAL ANALYSIS OF THE SOLAR SPECTRUM IN NATAL/RN AND ITS INFLUENCE ON THE PERFORMANCE OF PHOTOVOLTAIC SYSTEMS <u>Alan Rodrigues de Sousa</u> ¹ , Samira de Azevedo Santos Emiliavaca ¹ , Camila Fernanda Cardoso Teixeira ¹ , Amanda Gomes Barboza ¹ , Dayane Cynthia Pinto Oliveira ¹ , Nicholas Medeiros Lopes ¹ , Gabriela Rocha Alves da Silva ¹ , Ana Cleide Bezerra Amorim ¹ , João Vítor Fonseca de Mendonça ¹ ¹ Instituto SENAI de Inovação em Energias Renováveis
10:15	EFFECTS OF INVERTER CLIPPING ON SOLAR POWER VARIABILITY <u>Mónica Zamora Zapata</u> ¹ , Eduardo Luccini ² , Mauricio Trigo-Gonzalez ³ , Jorge Rabanal-Arabach ³ ¹ Universidad de Chile; ² CONICET-CEPROCOR; ³ Universidad de Antofagasta (SERC-Chile)



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THURSDAY - 06/11/2025 - MORNING

ORAL SESSION 26 - AGRIPV

Room: Sala de Reunião 2 (Room 2) | **Chair:** Prof. Dr. Roberto Zilles (USP - Brazil)

09:00	USING AGRIVOLTAIC SYSTEMS TO GENERATE INCOME IN AREAS SUSCEPTIBLE TO DESERTIFICATION <u>Gabriel Marçal da Cunha Pereira Carvalho</u> ¹ , Fernando Luiz Marcelo Antunes ² , Menaouar Berrehil El Kattel ² , Ingo Stadler ³ ¹ Consiglio Nazionale delle Ricerche; ² Universidade Federal do Ceará; ³ TH Köln
09:15	PERFORMANCE ANALYSIS OF A PVT-GSHP-BTES SYSTEM WITH NOCTURNAL AEROTHERMAL COLLECTION IN AGRICULTURAL APPLICATIONS <u>Abel Climente García</u> ¹ , Muhammad Talha Jahangir ¹ , Iván Patricio Acosta Pazmiño ² , Damu Murali ² , Stefano Benni ³ , Francesco Tinti ³ , João Gomes ² , Bassant Hany Mousa ⁴ ¹ MG Sustainable Engineering AB; ² University of Gävle; ³ University of Bologna; ⁴ Ain Shams University
09:30	COMPUTATIONAL MODELING OF A SMALL-SCALE AGRIVOLTAIC SYSTEM IN A POULTRY FARMING FACILITY <u>Atos Apollo Silva Borges</u> ¹ , Thiago Miranda Soares Rocha ² , Juan de Aguiar Gonçalves ¹ , Italo Fernandes e Silva ² ¹ Universidade Estadual do Piauí; ² Cruze Energia e Engenharia
09:45	DEVELOPMENT OF AN INTEGRATED MODELING APPROACH TO EVALUATE THE EFFECTS OF SHADING ON ALFALFA GROWTH IN FIXED AGRIVOLTAIC SYSTEMS <u>Gabriel Marçal da Cunha Pereira Carvalho</u> ¹ , Michele Moretta ² , Riccardo Rossi ² , Marco Moriondo ¹ , Luisa Leolini ² , Gloria Padovan ² , Aldo Dal Prà ¹ , Giuseppe Mario Lanini ¹ , Enrico Palchetti ² , Giovanni Argenti ² , Marco Bindi ² ¹ Institute of Bioeconomy of the National Research Council (CNR-IBE); ² Department of Agriculture, Food, Environment and Forestry (DAGRI), University of Florence
10:00	DESIGN AND IMPLEMENTATION OF A MULTISENSOR MONITORING SYSTEM FOR A PILOT AGRIVOLTAIC INSTALLATION IN BRAZIL <u>Amanda Mendes Ferreira Gomes</u> ¹ , Laís Cassanta Vidotto ¹ , Marília Braga ¹ , Victória Maschio Chaga ¹ , Thamires Alves Silva ¹ , Ricardo Rüther ¹ ¹ Universidade Federal de Santa Catarina
10:15	COMPARISON BETWEEN AGRIPV SIMULATION AND FIELD DATA: SOYBEAN CASE <u>Ricardo Nery de Castro</u> ¹ , Victor Eduardo Cauvilla de Oliveira ¹ , Lucas Del Mouro ¹ ¹ Flextronics Instituto de Tecnologia



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THURSDAY - 06/11/2025 - MORNING

ORAL SESSION 27 - EMERGING PV MATERIALS & DEVICES

Room: Sala de Reunião 3 (Room 3) | **Chair:** Prof. Dr. Adriano Moehleck (PUC-RS - Brazil)

09:00	KESTERITE AS WORKING BODY FOR EMERGING PHOTOVOLTAICS <u>Larissa de Sousa Mendonça</u>¹, Francisco Marcone Lima¹, Vanja Fontenele Nunes¹, João Pedro Santana Mota¹, Antonio Sergio Bezerra Sombra¹, Mona Lisa Moura de Oliveira², Francisco Olimpio Moura Carneiro³, Carla Freitas de Andrade¹, Francisco Nivaldo Aguiar Freire¹ ¹ Universidade Federal do Ceará; ² Universidade Estadual do Ceará; ³ Universidade da Integração Internacional da Lusofonia Afro-Brasileira
09:15	PERFORMANCE SIMULATION OF PEROVSKITE SOLAR CELL WITH Ti₃C₂TX MXENE AS THE HTL <u>Margdaline Ligavo</u>¹, Sebastian Waita¹, Francis Wanjala Nyongesa¹, Mmantsae Diale² ¹ University of Nairobi; ² University of Pretoria
09:30	EARLY AND ABRUPT DEGRADATION OF CIGS SYSTEMS DEPLOYED IN DIVERSE CLIMATIC CONDITIONS <u>Jose Ruben Angulo Abanto</u>¹, Michael Anthony García Huamani¹, Dante Alberto Mendoza Aucaruri¹, Juan de la Casa Higuera², Jan Amaru Palomino Töfflinger¹ ¹ Pontificia Universidad Católica del Perú; ² Universidad de Jaén
09:45	A STUDY INTO THE OPTOELECTRONIC PROPERTY OF Bi₂+δCr(TM)O₆+X (TM = Fe, Mn) ON PROSPECTIVE OF PHOTOVOLTAIC APPLICATION <u>Vikas N P</u>¹, Ravi P. Srivastava², Amritendu Roy¹ ¹ Indian Institute of Technology Bhubaneswar; ² Indian Institute of Technology Jodhpur
10:00	SYSTEM PERFORMANCE EVALUATION OF THREE PV TECHNOLOGIES ACROSS FIVE CLIMATIC ZONES IN PERU <u>Jose Ruben Angulo Abanto</u>¹, Luis Angel Conde Mendoza¹, Arturo Berastain¹, Michael Anthony García Huamani¹, Rafael Jesus Vidal Coral¹, Juan de la Casa Higuera², Jan Amaru Palomino Töfflinger¹ ¹ Pontificia Universidad Católica del Perú; ² Universidad de Jaén
10:15	ENHANCED PHOTOVOLTAIC PERFORMANCE VIA CACUSI₄O₁₀ DEPOSITION ON DYE-SENSITIZED TiO₂ THIN FILMS <u>Felipe Rodrigues da Silva</u>¹, <u>Joao Dionizio de Melo Neto</u>¹, Handerson José dos Prazeres², William Neves da Silva³, João Pedro Santana Mota¹, Vanja Fontenele Nunes¹, Paulo Herbert Franca Maia Junior¹, Antônio Cleibo dos Santos Júnior¹, Rodrigo Franco Cavalcante⁴, Francisco Marcone Lima¹, Ana Fabíola Leite Almeida¹, Francisco Nivaldo Aguiar Freire¹ ¹ Federal University of Ceará; ² Federal University of Rio Grande do Norte; ³ Federal University of Santa Catarina; ⁴ Federal Institute of Ceará



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SCIENTIFIC PROGRAMME

THURSDAY - 06/11/2025 - MORNING

ORAL SESSION 28 - SOLAR THERMAL APPLICATIONS AND STORAGE

Room: Sala de Reunião 4 (Room 4) | **Chair:** Jianhua Fan (DTU - Denmark)

09:00	EVALUATION OF A PV+THERMOELECTRIC HEAT STORAGE SYSTEM FOR SUPPLYING DOMESTIC HOT WATER <u>Vicente Alonso Carrera González¹</u> , <u>Jose Miguel Cardemil¹</u> ¹ Pontificia Universidad Católica de Chile
09:15	ALUMINIUM AS A MEANS FOR CHEMICALLY STORING AND TRANSPORTING RENEWABLE ENERGIES <u>Michel Yves Haller¹</u> , <u>Yvonne Isabell Baeuerle¹</u> , <u>Miren Agote Aran²</u> , <u>Jan Hüppi¹</u> , <u>Erik Leukens¹</u> , <u>Eline Willems³</u> , <u>Andreas Häberle¹</u> ¹ SPF Institute for Solar Technology - Eastern Switzerland University of Applied Sciences (OST); ² UMTec - Eastern Switzerland University of Applied Sciences (OST); ³ Pré Sustainability
09:30	ENHANCING OF THERMAL PERFORMANCE OF SOLAR-POWERED RO DESALINATION SYSTEM USING NANOFUIDS <u>Azizboy Khaitmukhamedov¹</u> , <u>Jasurjon Akhatov¹</u> , <u>Tukhtamurod Juraev¹</u> , <u>Murodbek Kuralov¹</u> ¹ Physical-Technical Institute of Uzbekistan Academy of Sciences
09:45	ANALYSIS OF THE ROLE OF THERMAL ENERGY STORAGE IN A SOLAR-DRIVEN POLYGENERATION SYSTEM FOR A DAIRY INDUSTRY <u>Eduardo A. Pina¹</u> , <u>Luis M. Serra¹</u> , <u>M. Naveed Arif¹</u> , <u>Miguel A. Lozano¹</u> , <u>Ana Lázaro¹</u> ¹ Universidad de Zaragoza
10:00	SCALABILITY OF THE ENVIRONMENTAL IMPACTS OF SEASONAL THERMAL ENERGY STORAGE: AN APPROACH TO EXTRAPOLATE THE GLOBAL WARMING POTENTIAL <u>Richard Lüchinger¹</u> , <u>Pauline Fuchs²</u> , <u>Jörg Worlitschek¹</u> , <u>Philipp Schuetz¹</u> , <u>Heimo Walter²</u> ¹ Lucerne University of Applied Sciences and Arts; ² TU Wien



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THURSDAY - 06/11/2025 - AFTERNOON

ORAL SESSION 29 - THERMAL STORAGE

Room: José de Alencar 4 (Room 5) | **Chair:** Prof. Halime Paksoy (Çukurova University - Turkey)

14:00	CONTROL OPTIMIZATION OF A LATENT THERMAL ENERGY STORAGE - HEAT PUMP SYSTEM FOR SPACE HEATING IN NORDIC CLIMATE <u>Aditya Singh Suswal</u> ¹ , Saman Nimali Gunasekara ¹ , Justin Chiu ¹ , Mustapha Habib ¹ , Qian Wang ¹ ¹ KTH Royal Institute of Technology
14:15	INVESTIGATION OF THE ROLE AND DESIGN OF THERMAL INSULATION IN THE ENVELOPE OF BURIED LARGE-SCALE THERMAL ENERGY STORAGE <u>Alice Tosatto</u> ¹ , Fabian Ochs ¹ , Muser Christoph ² ¹ Universität Innsbruck; ² Ingenieurbüro Ste.P ZT-GmbH
14:30	INFLUENCE OF CO ₂ CONDITIONING STRATEGIES ON THERMOCHEMICAL ENERGY STORAGE PERFORMANCE IN SOLAR POWER TOWERS <u>Freddy Nieto</u> ¹ , Alberto de la Calle ² , Rodrigo Escobar ¹ ¹ Pontificia Universidad Católica de Chile; ² Instituto de Catálisis y Petroquímica, CSIC
14:45	DEVELOPMENT OF A LOW-COST, SCALABLE SPHERICAL PCM STORAGE USING CORRUGATED PIPES: CONCEPT, DIMENSIONING AND PROTOTYPE DESIGN <u>Yannick Krabben</u> ¹ , Pascal Gürber ¹ , William Orlando Delgado Diaz ¹ , Philipp Roos ² , Markus Diener ³ , Anastasia Stamatou ¹ , Jörg Worlitschek ¹ ¹ Lucerne University of Applied Sciences; ² Cowa Thermal Solutions AG; ³ Energy4Me
15:00	LESSONS LEARNED FROM A 1-YEAR TESTING OF A COPPER SLAG PACKED BED THERMAL ENERGY STORAGE WITH RADIAL-FLOW TOPOLOGY <u>Ignacio Calderon Vasquez</u> ¹ , Raimundo Claren Figueroa ¹ , José Ortega ¹ , Valentina Constanza Segovia Araya ¹ , Ian Wolde Ponce ¹ , Rodrigo Escobar ¹ , Jose Miguel Cardemil ¹ ¹ Pontificia Universidad Católica de Chile
15:15	DESIGN OF A CONCRETE-BASED SENSIBLE HEAT STORAGE MODULE PROTOTYPE FOR SOLAR HEAT <u>Federico Hugo Licandro</u> ¹ , Pedro Andrés Galione Klot ¹ , Emmanuel Romano Riela ² , Joaquin Abrahan Buydid Castro ² ¹ Universidad de la República; ² Volfer



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SCIENTIFIC PROGRAMME

THURSDAY - 06/11/2025 - AFTERNOON

ORAL SESSION 30 - EMERGING PHOTOVOLTAICS AND ADVANCED CONCEPTS

Room: Sala de Reunião 1 (Room 1) | **Chair:** Lawrence L. Kazmerski (University of Colorado Boulder - USA)

14:00	INK WITH KESTERITE PRECURSORS AS ELECTROLYTE FOR DYE-SENSITIZED SOLAR CELL <i>Larissa de Sousa Mendonça¹, Francisco Marcone Lima¹, Vanja Fontenele Nunes¹, João Pedro Santana Mota¹, Antonio Sergio Bezerra Sombra¹, Mona Lisa Moura de Oliveira², Francisco Olimpio Moura Carneiro³, Carla Freitas de Andrade¹, Francisco Nivaldo Aguiar Freire¹</i> ¹ Universidade Federal do Ceará; ² Universidade Estadual do Ceará; ³ Universidade da Integração Internacional da Lusofonia Afro-Brasileira
14:15	REDUCING LOCK-IN THERMOGRAPHY TESTING TIME IN PHOTOVOLTAIC CELLS USING THERMAL TRANSIENT DATA <i>Renan Oliveira Silva¹, Douglas Bressan Riffel¹</i> ¹ Universidade Federal de Sergipe
14:30	SYNTHESIS AND CHARACTERIZATION OF GRAPHENE FILMS TO BE USED AS TRANSPARENT ELECTRODE IN SOLAR CELLS <i>Paola Jackeline Sánchez Guerrero¹, Valeria Del Campo¹, María Esperanza Benavides¹, Tamara Beltrán¹, Juan Chiappe¹, Perrine Carroy², Delfina Muñoz²</i> ¹ Universidad Técnica Federico Santa María; ² Université Grenoble Alpes CEA
14:45	SMALL-SCALE PV EMULATOR FOR EXPERIMENTAL CONTROL VALIDATION <i>Gabriele Lanzoni Mueller¹, Marcelo Menezes Morato¹, Julio Elias Normey-Rico¹</i> ¹ INCT CAPE, UFSC
15:00	DESIGN OF A NOVEL TUNABLE A+ LED SOLAR SIMULATOR <i>Leonardo Sollazzo¹, Rachele Grazzi¹, Nazim Aslam¹, Valentina Diolaiti¹, Donato Vincenzi¹</i> ¹ University of Ferrara, Consorzio Futuro in Ricerca
15:15	SPECTRAL CORRECTION METHOD FOR PRECISE SOLAR CELL CHARACTERIZATION UNDER MULTI-LAMP SOLAR SIMULATORS <i>Oybek Abdulkhaev¹, Asliddin Komilov², Jasurjon Akhatov¹</i> ¹ Physical-Technical Institute of Uzbekistan Academy of Sciences; ² National Scientific Research Institute of Renewable Energy Sources



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SCIENTIFIC PROGRAMME

THURSDAY - 06/11/2025 - AFTERNOON

ORAL SESSION 31 - REMOTE SYSTEMS & SECOND-LIFE BATTERIES

Room: Sala de Reunião 2 (Room 2) | **Chair:** Andreas Hauer (Bavarian Center for Applied Energy Research - Germany)

14:00	REAL-CASE ANALYSIS OF SMALL-SCALE PV-BESS APPLICATIONS USING SECOND-LIFE LI-ION BATTERIES <i>Fábio Luis França de Faria, Matheus Hohmann, Lucas Augusto Zanicoski Sergio, Vincenzo Collodel Benetti, Aline Kirsten Vidal de Oliveira, Ricardo Rüther</i> <i>Universidade Federal de Santa Catarina</i>
14:15	PERFORMANCE TESTING OF ADAPTED NI-MH BATTERIES FOR SECOND-LIFE USE IN AMAZONIAN ISOLATED MICROGRID <i>Lucas dos Santos Bulhosa, Anderson Amoras Vieira, Marcos André Barros Galhardo, Gilberto Figueiredo Pinto Filho, Daniel Henrique Nogueira Dias, Wilson Negrão Macedo</i> <i>UFPA - Universidade Federal do Pará; UFF - Universidade Federal Fluminense</i>
14:30	PERFORMANCE ASSESSMENT OF A SECOND-LIFE LI-ION BESS FOR EVS CHARGING <i>Lucas Augusto Zanicoski Sergio, Aline Kirsten Vidal de Oliveira, Matheus Hohmann, Giuliano Luchetta Martins, Helena Flávia Napolini, Ricardo Rüther</i> <i>Universidade Federal de Santa Catarina; Statkraft</i>
14:45	PERFORMANCE ASSESSMENT OF SOLAR OFF-GRID LIGHT POLES USING SECOND-LIFE BATTERIES <i>Julia Pereira Madeira, Ícaro Eiras da Cunha, Matheus Hohmann, Aline Kirsten Vidal de Oliveira, Ricardo Rüther</i> <i>Fotovoltaica/UFSC Laboratory</i>
15:00	PERFORMANCE OF A 200 KWH ENERGY STORAGE SYSTEM WITH FIRST AND SECOND LIFE LITHIUM-ION BATTERIES <i>Aline Kirsten Vidal de Oliveira, Lucas Augusto Zanicoski Sergio, Matheus Hohmann, Ricardo Rüther</i> <i>Universidade Federal de Santa Catarina</i>
15:15	SOFTWARE TOOL FOR CALCULATING ENERGY WEIGHTED COEFFICIENTS IN PV INVERTER EFFICIENCY EVALUATION <i>Juan Carlos Colque Ccarita, Geyciane Pinheiro de Lima, Marcos Camargo Lima Filho, João Pedro Carvalho Silveira, Pedro José dos Santos Neto, Tércio André dos Santos Barros</i> <i>Universidade Estadual de Campinas</i>



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THURSDAY - 06/11/2025 - AFTERNOON

ORAL SESSION 32 - BUILDING THERMAL PERFORMANCE & COMFORT

Room: Sala de Reunião 3 (Room 3) | **Chair:** Dr. Qian Wang (KTH Royal Institute of Technology - Sweden)

14:00	CLOSE TO 100 % RENEWABLE ENERGY SINGLE FAMILY HOUSE IN HEATING DOMINATED CLIMATES <u>Fabian Ochs</u> ¹ , <u>Alice Tosatto</u> ¹ , <u>Elisa Venturi</u> ¹ ¹ University of Innsbruck
14:15	A METHODOLOGICAL FRAMEWORK FOR CALCULATING THE LEVELIZED COST OF HEAT FOR SOLAR THERMAL APPLICATIONS IN RESIDENTIAL BUILDINGS <u>Yoann Louvet</u> ¹ , <u>Klaus Vajen</u> ¹ ¹ University of Kassel, Institute of Thermal Engineering
14:30	OPTIMISATION OF THERMAL COMFORT OF HOUSING IN MALINALCO, MEXICO, USING DIGITAL TOOLS AND BIOCLIMATIC DESIGN <u>Jose Roberto Garcia Chavez</u> ¹ , <u>Jorge Gama García</u> ¹ ¹ Metropolitan Autonomous University
14:45	SYNCHRONIZING OUTDOOR HEATWAVE DETECTION WITH INDOOR THERMAL EXTREMES: A CASE STUDY IN BRAZILIAN SOCIAL HOUSING <u>Matheus Korbes Bracht</u> ¹ , <u>Ana Paula Melo</u> ¹ , <u>Roberto Lamberts</u> ¹ ¹ Universidade Federal de Santa Catarina
15:00	ECONOMIC COMPARISON AMONG DIFFERENT SOLUTIONS FOR DOMESTIC WATER HEATING USING SOLAR THERMAL AND PV-SYSTEMS <u>Samuel Luna de Abreu</u> ¹ , <u>Allan R. Starke</u> ² , <u>Marcelo Pinho Almeida</u> ³ ¹ IFSC; ² UFSC; ³ IEE/USP
15:15	OPTIMAL BUILDING ORIENTATION FOR SOLAR RADIATION ACQUISITION UNDER RANDOM OBSTRUCTION CONDITIONS <u>Lei Zhuo</u> ¹ , <u>Liu Yu</u> ¹ , <u>Yirong Li</u> ¹ , <u>Siyi Liu</u> ¹ , <u>Song Jie</u> ² ¹ Northwestern Polytechnical University; ² School of Mechanical Engineering, Northwestern Polytechnical University, Xi'an



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THURSDAY - 06/11/2025 - AFTERNOON

ORAL SESSION 33 - SOLAR COOKING AND THERMAL APPLICATIONS

Room: Sala de Reunião 4 (Room 4) | **Chair:** Alan Bigelow (Solar Cookers International - USA)

14:00	EXPERIMENTAL COMPARISON OF TWO SPECIALIZED COOKING POTS DURING PARTLY CLOUDY CONDITIONS USING PARABOLIC DISH SOLAR COOKERS <u>Ashmore Mawire</u> North-West University
14:15	OPTICAL STUDY OF A LOW-SCALE HIGH RADIATIVE FLUX SOLAR FURNACE <u>Jose Daniel Lopez Duarte</u> ¹ , <u>Eduardo González Mora</u> ¹ , <u>Rasul Akbarov</u> ² ¹ Universidad Autonoma del Estado de Mexico; ² Institute of Materials Science of Uzbekistan Academy of Sciences
14:30	PERFORMANCE EVALUATION OF THE TOLOKATSIN 2020 SOLAR COOKER <u>Eduardo A. Rincón Mejía</u> ¹ , <u>Eduardo González-Mora</u> ¹ ¹ Autonomous University of México City
14:45	INTEGRATED OPTICAL, ELECTRICAL AND THERMAL MODELLING OF A PARABOLIC-TROUGH SPECTRAL-SPLITTING PV-T COLLECTOR <u>Chandan Pandey</u> ¹ , <u>Francesco Polito</u> ¹ , <u>Benjamin Teo</u> ¹ , <u>Mingyang Wu</u> ¹ , <u>Adelani Oyeniran</u> ¹ , <u>Christos N. Markides</u> ¹ ¹ Imperial College London
15:00	REDUCING UNEVEN DRYING FOR AN INDIRECT SOLAR DRYER WITH BUILT IN HEAT EXCHANGER <u>Henrik Davidsson</u> ¹ , <u>Lara Constanze Müller</u> ¹ , <u>Samten Lhendup</u> ² , <u>Martin Andersson</u> ¹ ¹ Lund University; ² Jigme Namgyel Engineering College
15:15	QUANTIFYING THE IMPACT OF URBAN MORPHOLOGY ON SOLAR POTENTIAL: A CASE STUDY OF RESIDENTIAL AREAS IN XI'AN, CHINA <u>Liu Yu</u> ¹ , <u>Zou Yufei</u> ¹ ¹ Northwestern Polytechnical University



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SCIENTIFIC PROGRAMME

POSTER SESSIONS



Solar World Congress 2025

SCIENTIFIC PROGRAMME

POSTER SESSION 1 - TUESDAY - 04/11/2025 - 16h00 to 17h00

THEME 01: SOLAR THERMAL POWER - PART 1/2

47 [A.I.1]	PERFORMANCE ANALYSIS OF A HIGH-TEMPERATURE KALINA CYCLE INTEGRATED WITH PARABOLIC TROUGH COLLECTORS FOR CSP IN MÉXICO <u>Eduardo González Mora</u> ¹ ¹ <i>Universidad Autónoma del Estado de México</i>
109 [C.II.10]	SOLAR HYDROGEN DERIVATIVE METHANOL PRODUCTION - SOLMETH24 PROJECT <u>Nathalie Monnerie</u> ¹ ¹ <i>German Aerospace Center DLR</i>
118 [C.I.4]	CHARACTERIZATION OF THERMOPHYSICAL PROPERTIES OF MOLTEN SALTS USED IN CSP PLANTS USING THE DT-HISTORY <u>Grover Jose Viracocha Chambi</u> ¹ , <u>Abdiel Mallco Carpio</u> ¹ , <u>Mauricio Teodoro Lague Condarco</u> ¹ , <u>Carlos Alberto Pérez Rábago</u> ² ¹ <i>Universidad de Antofagasta</i> ; ² <i>Instituto de Energías Renovables, Universidad Nacional Autónoma de México</i>
119 [A.I.9]	CHARACTERIZATION OF THE WELDING ZONE IN STAINLESS STEELS USED IN CSP PLANTS UNDER STATIC CORROSION CONDITIONS WITH MOLTEN SALTS <u>Mauricio Teodoro Lague Condarco</u> ¹ , <u>Abdiel Mallco Carpio</u> ¹ , <u>Grover Jose Viracocha Chambi</u> ¹ ¹ <i>Universidad de Antofagasta</i>
159 [D.II.2]	CHARACTERIZATION OF BIO-BASED PHASE CHANGE MATERIALS FOR SOLAR ENERGY APPLICATIONS <u>Thiago Torres Martins Rocha</u> ¹ , <u>Felipe Lara Pinto</u> ¹ , <u>Paulo Vinicius Trevizoli</u> ¹ ¹ <i>Federal University of Minas Gerais</i>
247 [D.I.8]	ANALYTICAL AND EXPERIMENTAL INVESTIGATION OF OVERALL HEAT LOSS COEFFICIENT FOR SINGLE NON-EVACUATED TUBE SOLAR THERMAL RECEIVER <u>Saroj Kumar Singh</u> ¹ , <u>Kishan Konannawar</u> ¹ , <u>Shireesh B Kedare</u> ¹ , <u>S V Prabhu</u> ¹ ¹ <i>Indian Institute of Technology Bombay</i>
296 [C.II.6]	PERFORMANCE ANALYSIS OF A SOLAR DRYER EQUIPPED WITH A PHASE CHANGE MATERIAL THERMAL STORAGE UNIT <u>Lesley Boago Modiradilo</u> ¹ , <u>Karabo Kepadisa</u> ¹ , <u>Kevin Nnanye Nwaigwe</u> ¹ ¹ <i>University of Botswana - Clean Energy Research Centre</i>
299 [B.II.3]	MICROWAVE DESORPTION OF ZEOLITE FOR RENEWABLE ENERGY PROCESSES <u>Bernhard Zettl</u> ¹ , <u>Nayrana Daborer-Prado</u> ¹ , <u>Gayaneh Issayan</u> ¹ ¹ <i>University of Applied Sciences Upper Austria</i>
445 [C.I.8]	HYBRID SYSTEM FOR GREEN HYDROGEN PRODUCTION USING MICROBIAL ELECTROLYSIS AND DESALINATION CELLS COUPLED WITH SOLAR-POWERED GLYCEROL STEAM REFORMING <u>Jhoni Anderson Schembek Silva</u> ¹ , <u>Maria Clara Ribeiro Carvalho</u> ¹ , <u>Emanulle Lima Carneiro</u> ¹ , <u>Thaissa Lorrany Alves de Sousa</u> ¹ , <u>Paulo Alexandre Costa Rocha</u> ¹ , <u>Fernanda Leite Lobo</u> ¹ , <u>Andre Valente Bueno</u> ¹ ¹ <i>Federal University of Ceara</i>
452 [D.II.12]	EVALUATION OF LINEAR FRESNEL REFLECTORS <u>Leonardo Faustino Lacerda de Souza</u> ¹ , <u>Chigueru Tiba</u> ² , <u>Naum Fraidenaich</u> ² , <u>Ikaro Teles Bezerra dos Santos Barreto</u> ² ¹ <i>Universidade Federal de Alagoas</i> ; ² <i>Universidade Federal de Pernambuco</i>



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SCIENTIFIC PROGRAMME

POSTER SESSION 1 - TUESDAY - 04/11/2025 - 16h00 to 17h00

THEME 01: SOLAR THERMAL POWER - PART 2/2

470 [D.I.11]	FOR ALL TANKS PRONE TO STORE ENERGY <u>Alfredo Angelillo</u> ¹ , <u>Walter Gaggioli</u> ² , <u>Primo Di Ascenzi</u> ² , <u>Valeria Russo</u> ² ¹ REEFS2; ² ENEA Casaccia-Italian National Agency for New Technologies, Energy and Sustainable Economic Development
485 [D.I.1]	NOVEL HELIOSTAT SHAPE CHARACTERIZATION METHODOLOGY USING A TERRESTIAL LASER SCANNER <u>Ricardo Filipe Carrão da Conceição</u> ¹ , <u>Maitane Ferreres Eceiza</u> ² , <u>Moritz Bitterling</u> ³ , <u>Kypros Milidonis</u> ³ , <u>Jose Gonzalez-Aguilar</u> ¹ , <u>Gregor Bern</u> ² , <u>Marios C. Georgiou</u> ³ , <u>Germilly Reki Morais Barreto</u> ¹ ¹ IMDEA Energy; ² Fraunhofer-Institut für Solare Energiesysteme ISE; ³ The Cyprus Institute
557 [C.I.2]	WEATHER-DRIVEN PTC GEOMETRY OPTIMIZATION: A SITE-SPECIFIC DESIGN METHODOLOGY <u>Gonzalo Martín López Chiossoni</u> ¹ , <u>Ezequiel Cardozo</u> ¹ , <u>Germán Morales</u> ¹ , <u>Juan Manuel Rodríguez Muñoz</u> ¹ , <u>Santiago Correa</u> ¹ ¹ Universidad de la República
622 [B.II.9]	SOLAR VARIABILITY AND THERMAL INERTIA IN SMALL CSP PLANTS <u>Fernando Gonçalves de Souza</u> ¹ , <u>Nelson Yurako Londoño Pabón</u> ¹ , <u>Márcia Barbosa Henriques Mantelli</u> ¹ ¹ Federal University of Santa Catarina
629 [B.I.5]	OSCILLATING ARC AS AN IMPROVEMENT STRATEGY FOR WELDS IN THERMAL STORAGE SYSTEMS IN CSP PLANTS <u>Raul Wilson Pasten Astudillo</u> ¹ , <u>Mauro Henriquez Heimpeller</u> ¹ , <u>Juan Carlos Reinoso Burrows</u> ¹ , <u>Felipe Galleguillos Madrid</u> ¹ , <u>Carlos Francisco Soto Soto</u> ¹ , <u>Carlos Duran Mora</u> ¹ , <u>Luis Guerreiro</u> ² , <u>Mehran Nabahat</u> ³ ¹ Universidad de Antofagasta; ² Universa de Evora; ³ Iberian Centre for Research in Energy Storage (CIIE)
709 [F.I.8]	DESIGN AND TEST OF NOVEL CSP COLLECTOR WITH THE RECEIVER ENCLOSED BY LAMBERTIAN REFLECTOR INTEGRATING TUBE <u>Stefan Larsson-Mastonstråle</u> ¹ ¹ Maston Renewable Energy Lab
888 [A.I.12]	HYBRID SENSIBLE-LATENT HEAT THERMAL ENERGY STORAGE FOR CONCENTRATED SOLAR POWER APPLICATIONS: INSIGHTS FROM THE COOPERANT PROJECT <u>Adina Hochuli</u> ¹ ¹ Lucerne University of Applied Science - School of Engineering and Architecture
894 [C.II.3]	PARTICLE CLUSTERING PHENOMENA ON SrCO ₃ DOPED BY Cu/Co DURING SOLAR THERMOCHEMICAL ENERGY STORAGE CYCLES <u>Hernando Romero Paredes Rubio</u> ¹ , <u>José Miguel Berrio Sánchez</u> ¹ , <u>Juan Daniel Macias</u> ¹ , <u>Lizbeth Monserrat Martínez Rojas</u> ¹ ¹ Universidad Autónoma Metropolitana Iztapalapa
999 [D.II.5]	NEXUS PVT



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POSTER SESSION 1 - TUESDAY - 04/11/2025 - 16h00 to 17h00

THEME 04: RENEWABLE RESOURCE ASSESSMENT AND METEOROLOGY - PART 1/3

58 [H.II.9]	ATMOSPHERIC ABSORPTION RATIO ON CITIES OF PERNAMBUCO STATE OF BRAZIL <u>Nelson Veissid¹</u> , <u>Helmut Muniz da Silva¹</u> , <u>Manoel Henrique de Oliveira Pedrosa Filho²</u> ¹ INPE; ² IFPE
74 [C.I.11]	PERNAMBUCO SOLARIMETRIC NETWORK <u>Manoel Henrique de Oliveira Pedrosa Filho¹</u> ¹ IFPE
99 [F.II.3]	FORECASTING PRODUCTION AND DEMAND FOR PV-INTEGRATED SYSTEM WITH LSTM AND COMPARISON WITH ANN MODEL <u>Farzin Golzar¹</u> , <u>Christian Schlüter Prieto¹</u> ¹ KTH Royal Institute of Technology
144 [G.II.2]	LONG SHORT TERM MEMORY RECURRENT NEURAL NETWORK AND STATISTICAL TIME SERIES ANALYSIS FORECAST MODELS FOR WIND FARM POWER OUTPUT AND ELECTRICITY PRICE <u>John Boland¹</u> , <u>Belinda Chiera¹</u> , <u>Lui Cirocco¹</u> , <u>Josh Chopin¹</u> ¹ Adelaide University
199 [F.I.5]	SUB-HOUR EVALUATION OF GLOBAL HORIZONTAL IRRADIANCE FROM THE PHYSICAL SOLAR MODEL (PSM) INCLUDING LATITUDES BELOW 20°S <u>Cristobal Silvero¹</u> , <u>Inti Piccioli²</u> , <u>Gonzalo Abal³</u> , <u>Agustín Laguarda²</u> ¹ Instituto de Física del Noa (INFNOA, CONICET-UNT); ² Laboratorio de Energía Solar, Universidad de la República; ³ Laboratorio de Energía Solar, Universidad de la República
203 [C.I.12]	DEVELOPMENT OF A NON-PARAMETRIC MODEL FOR COST-EFFECTIVE PYRANOMETER BASED ON ARTIFICIAL NEURAL NETWORK <u>Jonata Campelo de Albuquerque¹</u> , <u>Manoel Henrique de Oliveira Pedrosa Filho²</u> , <u>Ygo Neto Batista²</u> , <u>Regina Maria de Lima Neta²</u> , <u>Cassiano Manoel Bezerra de Melo²</u> ¹ Universidade Federal de Pernambuco; ² Instituto Federal de Educação, Ciência e Tecnologia de Pernambuco
265 [H.I.1]	PROCEDURES FOR QUALITY CONTROL OF SOLAR RADIATION DATA IN NORTHERN CHILE <u>Luis Angel Conde Mendoza¹</u> , <u>Douglas Olivares¹</u> , <u>Edward Fuentealba¹</u> , <u>Abel Taquichiri¹</u> , <u>Josefa Montoya¹</u> , <u>Aitor Marzo²</u> ¹ Universidad de Antofagasta; ² Universidad de Granada
266 [J.I.5]	A SYSTEM-INTEGRATING AND ENERGY FORECASTING TOOL FOR RENEWABLE ENERGY SOLUTIONS <u>Steven Nicolaou¹</u> , <u>Alexandros G. Charalambides¹</u> , <u>Rogiros Tapakis¹</u> , <u>Minas Patsalides¹</u> , <u>Andreas Ioannides¹</u> ¹ Cyprus University of Technology
312 [I.I.10]	ANALYSIS OF THE GHI VARIABILITY INDEX FOR THE CITY OF NATAL-RN <u>Ana Cleide Bezerra Amorim¹</u> , <u>Samira de Azevedo Santos Emiliavaca¹</u> , <u>Bruno do Nascimento e Silva¹</u> , <u>Alan Rodrigues de Sousa¹</u> , <u>João Vítor Fonseca de Mendonça¹</u> , <u>Nicholas Medeiros Lopes¹</u> , <u>Gabriela Rocha Alves da Silva¹</u> , <u>André Luiz de Oliveira Lira¹</u> ¹ ISI-ER - SENAI Innovation Institute for Renewable Energies
415 [D.I.4]	RECOVERING MISSING PHOTOVOLTAIC SIGNAL (GAPS) WITH LOW DIMENSIONAL MANIFOLD MODEL <u>Jugurta Rosa Montalvao Filho¹</u> , <u>Leoraig Santos Cardoso¹</u> , <u>Ézio Carvalho de Santana¹</u> , <u>Pierre Pinson²</u> , <u>Douglas Bressan Riffel¹</u> ¹ UFS; ² Imperial College London
436 [F.II.9]	ENSO INFLUENCE ON INTRADAY SOLAR IRRADIANCE IN URUGUAY DURING THE MOST AFFECTED PERIOD (NOV-DEC) <u>Agustín Laguarda¹</u> , <u>Belén Mayté Espino Budelli¹</u> , <u>Alejandra de Vera¹</u> , <u>Rafael Terra¹</u> ¹ Universidad de la República
456 [G.II.6]	CALIBRATION OF SOLAR IRRADIANCE DATA USING OPTIMAL TRANSPORT <u>Lucio Carlos Pimentel Paiva¹</u> , <u>Luiz Filipe Santana Oliveira Reis¹</u> , <u>Joel Kalil da Silva Pontes¹</u> , <u>Luis Guilherme Bastos de Castro¹</u> , <u>Rodrigo Raimundo Freitas Santos¹</u> , <u>Leticia Bezerra de Vasconcelos Vieira¹</u> ¹ CDV Desenvolvimento
482 [H.II.3]	THE IBERIAN PENINSULA BLACKOUT: CAUSES, IMPACTS, AND SOLUTIONS <u>Peter Yang¹</u> ¹ Case Western Reserve University



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SCIENTIFIC PROGRAMME

POSTER SESSION 1 - TUESDAY - 04/11/2025 - 16h00 to 17h00

THEME 04: RENEWABLE RESOURCE ASSESSMENT AND METEOROLOGY - PART 2/3

507 [G.I.5]	ENHANCED SITE-ADAPTATION FOR RELIABLE PV ASSESSMENT: COMPARATIVE STUDY FOR BRAZIL AND GERMANY <i>Gustavo Xavier de Andrade Pinto¹, Helena Flávia Napolini¹, Oliver Pfeiffer², Marília Braga¹, Amanda Mendes Ferreira Gomes¹, Rafael Antunes Campos¹, Ulf Blieske², Ingo Stadler², Ricardo Rüther¹</i> ¹ Universidade Federal de Santa Catarina; ² TH Köln - University of Applied Sciences
508 [I.I.4]	RETHINKING PV GENERATION CAPACITIES <i>Stefan Wilker¹, Fiona Layes¹, Thilo Sauter¹</i> ¹ TU Wien, Institute for Computer Technology
547 [I.I.7]	ASSESSMENT OF GLOBAL NUMERICAL WEATHER PREDICTION MODELS FOR SHORT-TERM SOLAR IRRADIATION FORECASTING IN SOUTHEASTERN SOUTH AMERICA <i>Vívian Teixeira-Branco¹, Rodrigo Alonso-Suárez², Gabriel Cazes²</i> ¹ Universidad Tecnológica de Uruguay; ² Universidad de la República
597 [G.I.3]	MACHINE LEARNING FOR FORECASTING HYDROGEN PRODUCTION FROM SOLAR ENERGY USING K-NEAREST NEIGHBORS REGRESSION MODEL: A CASE STUDY IN PETROLINA, BRAZIL <i>Gabriel de Oliveira Almeida¹, Tainan Sousa Viana¹, Jesse Van Griensven Thé², Maria Eugênia Vieira da Silva¹, Paulo Alexandre Costa Rocha¹</i> ¹ Federal University of Ceará; ² University of Guelph
600 [F.I.4]	METHODS FOR PERFORMANCE EVALUATION OF PHOTOVOLTAIC PLANTS WITH REDUCED INSTRUMENTATION <i>João Frederico Souza de Paula¹, João Lucas de Souza Silva¹, Marcelo Vinícius de Paula¹, Gustavo Fraidenraich¹, Tarcio André dos Santos Barros¹</i> ¹ Universidade Estadual de Campinas
609 [F.I.10]	MULTI-SCALE PERFORMANCE ASSESSMENT OF HELIOSAT-4 AND LCIM FOR SOLAR IRRADIANCE ESTIMATION IN ARGENTINA <i>Anabela Lusi¹, Facundo Orte¹, Elian Wolfram², Rodrigo Alonso Suárez³, Agustín Laguarda⁴</i> ¹ Departamento de Investigaciones en Láseres y Aplicaciones (DEILAP), UNIDEF (CITEDEF-CONICET); ² Servicio Meteorológico Nacional, Dirección Nacional de Ciencia e Innovación en Productos y Servicios; ³ Laboratorio de Energía Solar, Cenur Litoral Norte, Udelar; ⁴ Laboratorio de Energía Solar, Facultad de Ingeniería, Udelar
634 [F.I.1]	SIMULATION OF POA IRRADIANCE SENSOR PLACEMENT BIASES IN SINGLE-AXIS TRACKERS: A MID-LATITUDE CASE STUDY WITH OPEN-SOURCE TOOL <i>Benhur Azambuja Possatto¹</i> ¹ Flextronics Instituto de Tecnologia
701 [G.I.12]	CHARACTERIZING COASTAL STRATOCUMULUS CLOUD IMPACTS ON SOLAR IRRADIANCE FOR SHORT-TERM FORECASTING <i>Gabriela Pallauta Pérez¹, Mónica Zamora Zapata¹</i> ¹ Universidad de Chile
723 [B.I.6]	CHALLENGES FOR GROWING THE SHARE OF RENEWABLES IN PORTUGAL AND CHILE <i>Luís Guerreiro¹, Mauro Henriquez Heimpeller²</i> ¹ ICT- Institut for Earth Sciences, University of Evora; ² University of Antofagasta
727 [J.I.1]	CLOUD VARIABILITY AND CLOUDLESS PERCENTAGE DAYS CALCULATION USING CLUSTER ANALYSIS <i>Ricardo Almeida de Siqueira¹, Vinicius Roggerio da Rocha¹, Rodrigo Santos Costa¹, Andre Rodrigues Goncalves¹</i> ¹ Instituto Nacional de Pesquisas Espaciais
740 [I.I.3]	METHODOLOGICAL CONSIDERATIONS FOR PV POWER FLUCTUATION CHARACTERIZATION <i>Ricardo Moura de Souza¹, Rafael Cavalcanti Neto¹, Felipe José Pereira Ferreira¹, José Filho da Costa Castro¹, Eduardo José Barbosa¹</i> ¹ Universidade Federal de Pernambuco
747 [I.I.11]	ANALYSIS OF GHI VARIABILITY FROM WRF-SOLAR FOR THE FIVE CITIES OF BRAZIL <i>Ana Cleide Bezerra Amorim¹, Samira de Azevedo Santos Emiliavaca¹, Bruno do Nascimento e Silva¹, Alan Rodrigues de Sousa¹, André Luiz de Oliveira Lira¹, João Vítor Fonseca de Mendonça¹, Gabriela Rocha Alves da Silva¹, Moisés Elias Nascimento Rufino da Costa¹</i> ¹ ISI-ER - SENAI Innovation Institute for Renewable Energies



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SCIENTIFIC PROGRAMME

POSTER SESSION 1 - TUESDAY - 04/11/2025 - 16h00 to 17h00

THEME 04: RENEWABLE RESOURCE ASSESSMENT AND METEOROLOGY - PART 3/3

752 [H.II.5]	A LOW-COST IOT-BASED IRRADIANCE ESTIMATOR FOR PHOTOVOLTAIC MODULES <u>Pedro Henrique da Costa Eustáchio</u>¹, <u>Gustavo Medeiros de Souza Azevedo</u>¹, <u>Eduardo José Barbosa</u>¹, <u>Marcelo Cabral Cavalcanti</u>¹, <u>Fabrizio Bradaschia</u>¹, <u>Rafael Cavalcanti Neto</u>¹, <u>Tiago Alves Fernandes</u>¹, <u>José Filho da Costa Castro</u>² ¹ Universidade Federal de Pernambuco - UFPE; ² UFPE
763 [I.I.2]	IMPROVING SOLAR DATA QUALITY IN RIO GRANDE DO NORTE STATIONS THROUGH NIGHTTIME ANOMALY DETECTION TESTS <u>João Vítor Fonseca de Mendonça</u>¹, <u>Samira de Azevedo Santos Emiliavaca</u>¹, <u>Alan Rodrigues de Sousa</u>¹, <u>Ana Cleide Bezerra Amorim</u>¹, <u>Nicholas Medeiros Lopes</u>¹, <u>André Luiz de Oliveira Lira</u>¹, <u>Gabriela Rocha Alves da Silva</u>¹ ¹ Instituto Senai de Inovação em Energias Renováveis - ISIER
776 [H.I.6]	COMPARATIVE ASSESSMENT OF PV ENERGY FORECASTING TOOLS USING EMPIRICAL DATA FROM A PLANT IN NORTHEAST BRAZIL <u>Marcos Camargo Lima Filho</u>¹, <u>Pedro José dos Santos Neto</u>¹, <u>Juan Carlos Colque Ccarita</u>¹, <u>João Pedro Carvalho Silveira</u>¹, <u>Diego Lucas de Carvalho Martinez</u>¹, <u>Tárcio André dos Santos Barros</u>¹ ¹ Universidade Estadual de Campinas (UNICAMP)
790 [H.I.12]	STRATEGIC SITING OF PHOTOVOLTAIC AND BATTERY ENERGY STORAGE SYSTEMS IN BOTSWANA <u>Amogelang Moemba</u>¹, <u>Marília Braga</u>², <u>Amanda Mendes Ferreira Gomes</u>², <u>Daniel Odilio dos Santos</u>², <u>Ricardo Rüther</u>³ ¹ Botswana Institute of Technology Research and Innovation (BITRI); ² Solar Energy Research Laboratory Fotovoltaica/UFSC; ³ Laboratório de Energia Solar Fotovoltaica
800 [I.I.12]	SPATIAL CHARACTERIZATION OF OVERIRRADIANCE EVENTS IN THE CITY OF NATAL <u>Samira de Azevedo Santos Emiliavaca</u>¹, <u>Ana Cleide Bezerra Amorim</u>¹, <u>João Vítor Fonseca de Mendonça</u>¹, <u>Alan Rodrigues de Sousa</u>¹, <u>Gabriela Rocha Alves da Silva</u>¹, <u>Moisés Elias Nascimento Rufino da Costa</u>¹ ¹ ISI-ER
866 [I.II.11]	ANALYSIS OF THE SPATIAL VARIABILITY OF GHI IN RIO GRANDE DO NORTE BRAZIL <u>Aléxia Monteiro Valentim</u>¹, <u>Ana Cleide Bezerra Amorim</u>¹, <u>Cláudio Moisés Santos e Silva</u>², <u>João Vitor de Oliveira</u>², <u>Samira de Azevedo Santos Emiliavaca</u>¹ ¹ ISI-ER; ² UFRN
875 [I.II.12]	ANALYSIS OF GHI VARIABILITY FROM WRF-SOLAR FOR THE THREE CITIES OF AMAPÁ <u>Karen Fernanda Teixeira Braz Lima</u>¹, <u>Ana Cleide Bezerra Amorim</u>¹, <u>Vanessa de Almeida Dantas</u>¹, <u>Samira de Azevedo Santos Emiliavaca</u>¹, <u>Gabriel Brito Costa</u>² ¹ Instituto Senai de Energias Renováveis; ² Universidade Federal do Oeste do Pará



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POSTER SESSION 1 - TUESDAY - 04/11/2025 - 16h00 to 17h00

THEME 09: MARKET, ECONOMY, POLICIES, ENVIRONMENT AND SOCIAL

151 [D.II.9]	POTENTIAL AND DEMAND FOR PHOTOVOLTAIC SYSTEMS IN RURAL AND URBAN AREAS IN 3 SELECTED AFRICAN COUNTRIES <i>Thomas Merkle</i> ¹ ¹ Thomas Merkle Consultant
218 [E.II.6]	WINDS OF ENERGY TRANSITION AND THEIR IMPACTS ON THE LIVELIHOODS OF COASTAL COMMUNITIES IN CEARÁ, BRAZIL <i>Lígia de Nazaré Aguiar Silva</i> ¹ , <i>Juana Angélica Felipe Fernandes</i> ² ¹ Pontifícia Universidade Javeriana; ² Universidad Adolfo Ibáñez
333 [E.II.2]	REGULATORY IMPACTS ON INNOVATIVE ENERGY MODELS: A CASE STUDY ON SUBSCRIPTION-BASED SOLAR ENERGY SOLUTIONS IN BRAZIL <i>Annelys Machado Schetinger</i> ¹ , <i>Israel Felix de Almeida</i> ¹ , <i>André Frossard Pereira de Lucena</i> ¹ , <i>Sophia Cavalcanti Barbosa Costa</i> ¹ ¹ Federal University of Rio de Janeiro
368 [E.I.4]	A GIS-BASED FUZZY AHP METHOD FOR SOLAR FARM SITE EVALUATION <i>Aminreza Neshat</i> ¹ , <i>Mohammad Rahnama</i> ² , <i>Ahmed Abbas Ali</i> ¹ , <i>Saman Javadi</i> ³ , <i>Masoumeh Abed</i> ¹ ¹ Department of GIS/RS, Science and Research Branch, Islamic Azad University, Tehran, Iran; ² Lasalle College Vancouver, BC, Canada; ³ Department of Water Engineering, College of Agriculture Technology, University of Tehran, Tehran, Iran
410 [E.II.12]	TECHNICAL AND ECONOMIC ANALYSIS OF THE IMPLEMENTATION OF BATTERY ENERGY STORAGE SYSTEMS (BESS) FOR NODES IN THE NATIONAL ELECTRIC SYSTEM (SEN) WITH HIGH CONCENTRATION OF SOLAR ENERGY <i>Patricio Valdivia-Lefort</i> ¹ ¹ USACH
523 [E.I.1]	WORKSHOP-BASED RENEWABLE ENERGY EDUCATION FOR MIDDLE SCHOOL STUDENTS IN SOUTHERN BRAZILIAN PUBLIC SCHOOLS <i>Amanda Mendes Ferreira Gomes</i> ¹ , <i>Bianca Neves Machado</i> ² , <i>Gabriela Pereira da Silva Maciel</i> ² , <i>Gabriela Sehnem Heck</i> ² , <i>Ricardo Rüther</i> ¹ , <i>Aline Cristiane Pan</i> ² ¹ Universidade Federal de Santa Catarina; ² Universidade Federal do Rio Grande do Sul
561 [E.I.8]	POLICY RECOMMENDATIONS FOR ACHIEVING NATIONAL AND GLOBAL 100% RENEWABLE ENERGY TARGETS <i>David S. Renne</i> ¹ , <i>Rainer Hinrichs-Rahlwes</i> ² ¹ Dave Renné Renewables; ² European Renewable Energy Foundation
642 [E.II.9]	FORECASTING PHOTOVOLTAIC MODULE WASTE GENERATION IN BRAZIL: A PROSPECTIVE ANALYSIS <i>Raimundo Guimaraes Saraiva Junior</i> ¹ , <i>Elizeu Lucas Moura Barboza</i> ¹ , <i>Kaline Kelle Lima de Oliveira</i> ¹ , <i>Francisco Glaubênio Cavalcante de Almeida</i> ¹ ¹ Federal Institute of Education, Science and Technology of Ceará (IFCE)
902 [B.I.8]	EMPOWERING SOLAR INNOVATION IN MALTA: FROM SKILLS DEVELOPMENT TO REAL-TIME PV DATA INFRASTRUCTURE <i>Brian Azzopardi</i> ¹ , <i>Brian Bartolo</i> ¹ , <i>Vlad Costea</i> ¹ , <i>Austeja Mockeviciute-Azzopardi</i> ¹ ¹ The Foundation for Innovation and Research - Malta (FIR.MT)



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POSTER SESSION 2 - WEDNESDAY - 05/11/2025 - 16h00 to 17h00

THEME 02: SOLAR HEATING AND COOLING - PART 1/2

52 [A.I.2]	TECHNICAL ASSESSMENT OF SOLAR-ASSISTED REFRIGERATION USING PARABOLIC TROUGH COLLECTORS IN A MEXICAN PHARMACEUTICAL FACILITY <u>Eduardo González Mora</u> ¹ , <u>Maria Dolores Duran García</u> ¹ ¹ <i>Universidad Autónoma del Estado de México</i>
123 [D.I.12]	LIFE CYCLE ASSESSMENT (LCA) AND LIFE CYCLE COSTING (LCC) ANALYSIS FOR EXISTING AND NEW CONTAINER CONCEPTS OF ICE STORES FOR COLD SOLAR DISTRICT HEATING NETWORKS <u>Stephan Lang</u> ¹ , <u>Stefanie Lott</u> ¹ , <u>Harald Drück</u> ¹ , <u>Jonas Hilpert</u> ² , <u>Corinna Leonhardt</u> ³ ¹ IGTE - University of Stuttgart; ² Viessmann Deutschland GmbH; ³ Viessmann Holding International GmbH
137 [C.II.8]	FEASIBILITY STUDY OF CONCENTRATING SOLAR THERMAL (CST) PLANT FOR PROCESS HEAT APPLICATION IN TEXTILE INDUSTRY <u>Dwipen Boruah</u> ¹ ¹ <i>Global Sustainable Energy Solutions (GSES)</i>
138 [B.II.2]	DESIGN OF A COMPACT FRESNEL SYSTEM FOR OPTIMIZATION OF INDUSTRIAL PROCESSES <u>Marco Antonio Gonzalez Martinez</u> ¹ , <u>Maria Dolores Duran García</u> ¹ , <u>Eduardo González Mora</u> ¹ ¹ <i>Universidad del Estado de México</i>
148 [D.I.9]	FMI-BASED CO-SIMULATION FRAMEWORK FOR FROST PREVENTION AND SUPPLY AIR BOOSTING IN MVHR SYSTEMS WITH RENEWABLES INTEGRATION <u>Youssef Elomari</u> ¹ , <u>Zeng Peng</u> ¹ , <u>Qian Wang</u> ¹ ¹ <i>KTH Royal Institute of Technology</i>
154 [B.I.1]	HEAT TRANSFER PERFORMANCE ANALYSIS OF A P-TYPE RIBBED SOLAR AIR HEATER (P-SAH) <u>Sachindra Kumar Rout</u> ¹ , <u>Sanjib Kumar Rout</u> ¹ , <u>Suvaranjan Sutar</u> ¹ ¹ <i>C V Raman Global University, Bhubaneswar, India</i>
211 [C.I.5]	AIR-PVT IN SOLAR COOLING SYSTEMS: A FEASIBILITY STUDY <u>Giorgos Philip Aspetakis</u> ¹ , <u>Qian Wang</u> ¹ ¹ <i>KTH Royal Institute of Technology</i>
301 [C.I.1]	STANDARDS, CERTIFICATION AND TRAINING NEEDS FOR SOLAR WATER HEATERS <u>Jianhua Fan</u> ¹ , <u>Elsabet Nielsen</u> ¹ , <u>Pengcheng Wang</u> ¹ , <u>Simon Furbo</u> ¹ ¹ <i>Technical University of Denmark</i>
419 [B.II.4]	GENERAL INCIDENT ANGLE MODIFIER MODEL FOR QUASI-DYNAMIC TESTING OF SOLAR THERMAL COLLECTORS <u>Juan Manuel Rodríguez Muñoz</u> ¹ , <u>Italo Bove</u> ¹ , <u>Pedro Andrés Galione Klot</u> ¹ ¹ <i>Laboratorio de Energía Solar de la Universidad de la República</i>
475 [B.I.9]	USE OF STAINLESS-STEEL TUBES TO REPLACE THE USUAL COPPER TUBES IN FLAT PLATE SOLAR COLLECTORS IN THE BRAZILIAN SOLAR THERMAL MARKET: OVERVIEW AND IMPACT ON ENERGY EFFICIENCY <u>Paulo José Schiavon Ara</u> ¹ , <u>Daniel Setrak Sowmy</u> ¹ ¹ <i>Instituto de Pesquisas Tecnológicas de São Paulo</i>
538 [B.I.3]	INFLUENCE OF THERMAL STORAGE TANK SIZING ON THE PERFORMANCE OF PHOTOVOLTAIC-THERMAL SYSTEMS <u>Rafael William Cuceneli Faleiros</u> ¹ , <u>Júlio César Passos</u> ¹ , <u>Bruna de Oliveira Busson</u> ¹ ¹ <i>Universidade Federal de Santa Catarina</i>
590 [A.I.10]	AN ALL-IN-ONE, HARMONIZED PLANNING-TO-DIGITAL TWIN TOOL FOR RENEWABLE ENERGY SYSTEMS <u>Ignacio Gurruchaga</u> ¹ , <u>Daniel Carboneil</u> ² , <u>Damian Birchler</u> ¹ , <u>Andreas Häberle</u> ¹ ¹ SPF Institute for Solar Technology, Eastern Switzerland University of Applied Sciences; ² DCARBO Energy Consulting S.L.
621 [A.I.8]	ASSESSMENT OF LOW-TEMPERATURE PCM EMULSIONS AS TES <u>Mónica Delgado Gracia</u> ¹ , <u>Xiaolin Qiu</u> ² , <u>Ana Lázaro</u> ¹ ¹ <i>University of Zaragoza-I3A</i> ; ² <i>Jiangnan University</i>



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POSTER SESSION 2 - WEDNESDAY - 05/11/2025 - 16h00 to 17h00

THEME 02: SOLAR HEATING AND COOLING - PART 2/2

624 [B.II.10]	TECHNO-ECONOMIC ASSESSMENT OF THE USE OF HYBRID SOLAR COLLECTORS IN INDUSTRIAL FACILITIES - A CASE STUDY FOR THE FOOD INDUSTRIAL SECTOR <i>João Pereira Cardoso¹, David Salema¹, Iván Patricio Acosta Pazmiño², António Arto³, Damu Murali², João Gomes², José Manuel Pereira Mendes⁴, João Pedro Marques Correia Santos⁴, Jorge Facão¹</i> ¹ Laboratório Nacional de Energia e Geologia, I.P.; ² Department of Building Engineering, Energy Systems and Sustainable Science, University of Gävle; ³ MG Sustainable Engineering AB; ⁴ ESIP- European Seafood Investments Portugal, S.A.
659 [C.II.11]	DESIGN AND SIMULATION OF INSTITUTIONAL SOLAR-POWERED COOK STOVE WITH THERMAL ENERGY STORAGE SYSTEM <i>Kamil Dino Adem¹, Tihun Birhanu Beyene¹, Abdulkadir Aman Hassen¹</i> ¹ School of Mechanical and Industrial Engineering, Addis Ababa Institute of Technology, Addis Ababa University, Addis Ababa, Ethiopia
742 [C.I.3]	RAY TRACING ANALYSIS OF CPC-HEAT PIPE COLLECTORS FOR INDUSTRIAL LOW- AND MID-TEMPERATURE HEAT PRODUCTION USING REFLECTORS OF DIFFERENT MATERIALS AND GEOMETRIES <i>Italo Bove¹, Sebastián Andrés Lillo Órdenes², Renzo Guido Cruz¹, Loreto Valenzuela³, Pedro Andrés Galione Klot¹</i> ¹ Facultad de Ingeniería, Universidad de la República; ² Völfer Ingeniería; ³ Plataforma Solar de Almería - CIEMAT
778 [C.I.9]	ELECTRIFICATION OF INDUSTRIAL PROCESS HEAT USING HEAT PUMPS AND PHOTOVOLTAIC SYSTEMS <i>Fernando de Brida Alves¹, Allan R. Starke¹, Vinicius Rugeri Borges Bonini¹</i> ¹ Federal University of Santa Catarina
884 [B.II.7]	SHIPCAL-CL: IMPROVING THE SIMULATION OF SOLAR THERMAL SYSTEMS FOR INDUSTRIAL PROCESSES IN CHILE <i>Adrian Riebel¹, Cristian Cortes Aguirre¹, Raimundo León¹, Jose Miguel Cardemil¹, Rodrigo Escobar¹</i> ¹ Pontificia Universidad Católica de Chile
887 [C.II.12]	DESIGN, AND EXPERIMENTAL INVESTIGATION OF INDIRECT SOLAR THERMAL COOKER FOR STREET FOOD COOKING <i>Zelalem Teshome¹, Abdulkadir Aman Hassen²</i> ¹ Dire Dawa University; ² Addis Ababa University
898 [C.II.2]	DYNAMIC SIMULATION OF SOLAR-ASSISTED AIR-SOURCE DUAL-LOAD HEAT PUMP SYSTEM FOR BUILDING SPACE HEATING AND COOLING <i>Fabian Chidubem Eze¹, Wangje Lee², Young Sub An², Hongjin Joo², Kyoung-Ho Lee², Julius Ogola¹, Julius M. Mwabora¹</i> ¹ University of Nairobi; ² Renewable Energy System Laboratory, Korea Institute of Energy Research



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POSTER SESSION 2 - WEDNESDAY - 05/11/2025 - 16h00 to 17h00

THEME 05: BEYOND SOLAR: OTHER RENEWABLES AND ASSOCIATED APPLICATIONS, COMPONENTS, SIMULATION AND ANALYSIS - PART 1/2

91 [H.II.1]	GEOSPATIAL CLUSTERING OF WIND/SOLAR POTENTIAL: IDENTIFYING HIGH-YIELD AREAS IN CEARÁ, NORTHEAST BRAZIL <u>Igor Hammom Rodrigues da Costa</u> ¹ , <u>Maria Ilana dos Santos Guedes</u> ² , <u>Paulo Honorio Filho</u> ¹ , <u>Ernande Eugenio Campelo Moraes</u> ¹ , <u>Dalton Honorio</u> ¹ ¹ Universidade Federal do Ceará; ² Imperial College London
114 [H.II.8]	ANALYSIS OF SMALL-SCALE WIND TURBINE BLADES FOR OPTIMAL POWER GENERATION: A CFD-BEM STUDY <u>Jasson Fernandez Gurgel</u> ¹ , <u>Pedro Lucas Barros Martins</u> ¹ , <u>Carla Freitas de Andrade</u> ¹ , <u>Francisco Olimpio Moura Carneiro</u> ² , <u>Francisco Nivaldo Aguiar Freire</u> ¹ , <u>Felipe Cordeiro de Sousa</u> ¹ ¹ Universidade Federal do Ceará; ² Universidade da Integração Internacional da Lusofonia Afro-Brasileira
167 [B.I.11]	PHYSICOCHEMICAL CHARACTERIZATION OF MACAÚBA (ACROCOMIA ACULEATA) FOCUSING ON ENERGY APPLICATIONS <u>Kennedy Romualdo Guedes Coimbra</u> ¹ , <u>Eva Furtado de Sousa</u> ¹ , <u>Mauricio Dorneles Lima</u> ¹ , <u>Paloma Cavalcante Silva</u> ¹ , <u>Francisco Assis Bezerra da Cunha</u> ² , <u>Maria Alexandra de Sousa Rios</u> ¹ ¹ Universidade Federal do Ceará; ² Universidade Regional do Cariri
183 [I.II.1]	NEURAL NETWORK-DRIVEN OPTIMIZATION: ENHANCING SPEED IN ENERGY SYSTEMS <u>Theresa Reinhardt</u> ¹ , <u>Viktor Wesselak</u> ¹ , <u>Rohith Krishnan Bala Krishnan</u> ¹ , <u>Christoph Schmidt</u> ¹ , <u>Sebastian Voswinckel</u> ¹ ¹ Hochschule Nordhausen
244 [I.II.5]	UTILIZATION OF EXCESS ENERGY IN PHOTOVOLTAIC PLANTS CAUSED BY CLIPPING: EFFICIENCY COMPARISON BETWEEN BATTERY AND GREEN HYDROGEN STORAGE SOLUTIONS <u>Beatriz Souza Horn</u> ¹ , <u>Orlando Soares</u> ² , <u>Paulo Brito</u> ³ ¹ Polytechnic Institute of Bragança - IPB and Portalegre Polyth Polytechnic University - IPP; ² Polytechnic Institute of Bragança - IPB; ³ Portalegre Polyth Polytechnic University - IPP
271 [E.I.12]	THERMAL AND CHEMICAL ANALYSIS OF TWO-STAGE THERMOCHEMICAL PROCESS BASED ON CeO ₂ IN SOLAR THERMOCHEMICAL REACTOR <u>Jasurjon Akhatov</u> ¹ , <u>Khushdil Akhmadov</u> ¹ ¹ Physical-Technical Institute of the Academy of Sciences of Uzbekistan
289 [H.II.12]	THE ROLE OF WASTE HEAT RECOVERY IN ENHANCING POWER-TO-HYDROGEN AND POWER-TO-METHANE SYSTEMS <u>Malin Claudia Siegwart</u> ¹ , <u>Judit Tomás Verde</u> ¹ , <u>Curtis Meister</u> ¹ , <u>Jörg Worlitschek</u> ¹ ¹ Lucerne University of Applied Sciences and Arts
341 [J.I.8]	EFFICIENT HEATING FOR HIGH ALTITUDE HOUSING IN PERU <u>Ajay Dalal</u> ¹ , <u>Walter Daniel Leon Salas</u> ¹ , <u>William Hutzel</u> ¹ , <u>Pedro Flores Larico</u> ² , <u>Miguel Angel Vizcardo Cornejo</u> ² , <u>Mauricio Postigo Malaga</u> ² , <u>Miguel Angel Ocharan Pichu</u> ² ¹ Purdue University; ² Universidad Nacional de San Agustín de Arequipa
359 [H.II.10]	SOLAR ENERGY FORECASTING USING NEURAL NETWORKS: INSIGHTS FROM REAL SYSTEMS IN THE AMAZON REGION <u>Maykon Silva Carvalho</u> ¹ , <u>Fábio de Lima Bezerra</u> ¹ , <u>Licinius Dimitri Sá de Alcantara</u> ¹ ¹ Federal Rural University of Amazon
490 [I.II.8]	OPTIMIZATION OF GREEN HYDROGEN PRODUCTION IN AN ALKALINE ELECTROLYZER <u>Maria Gabriela Chagas de Oliveira</u> ¹ , <u>Caio Vinicius Pinheiro Vital</u> ¹ , <u>Luis Arturo Gómez Malagón</u> ¹ ¹ Universidade de Pernambuco
555 [J.I.11]	SIZING AND PRELIMINARY EVALUATION OF THE DYNAMICS OF A PHOTOVOLTAIC SOLAR ENERGY GENERATION, CONDITIONING, AND STORAGE SUBSYSTEM DEDICATED TO GREEN HYDROGEN PRODUCTION <u>Pedro Henrique de Lima Gomes</u> ¹ , <u>Mario Genivan Aguiar Soares</u> ² , <u>Joao Pedro Melo Santos Martins</u> ¹ , <u>Vivian Carvalho de Araújo</u> ¹ , <u>Tobias Paixão Tavares</u> ¹ , <u>Vinicius de Carvalho Araújo</u> ¹ , <u>Gustavo Ellton de Oliveira Costa Teixeira</u> ¹ , <u>Daniel Silveira Serra</u> ¹ , <u>Carla Freitas de Andrade</u> ² , <u>Concepción Caravaca Moreno</u> ³ , <u>Rita Ximena Valenzuela Balderrama</u> ³ , <u>Mona Lisa Moura de Oliveira</u> ¹ ¹ Universidade Estadual do Ceará; ² Universidade Federal do Ceará; ³ Centro de Investigaciones Energéticas, Medioambientales y Tecnológicas



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POSTER SESSION 2 - WEDNESDAY - 05/11/2025 - 16h00 to 17h00

THEME 05: BEYOND SOLAR: OTHER RENEWABLES AND ASSOCIATED APPLICATIONS, COMPONENTS, SIMULATION AND ANALYSIS - PART 2/2

601 [H.I.11]	SOL-DAZE: AI-DRIVEN SMART SOLAR WITH INTEGRATED STORAGE FOR DECENTRALIZED AUTONOMOUS ZERO EMISSION FUTURE - TECHNO ECONOMIC ANALYSIS <i>Mikel Martín Zazpe¹, Sathish Kumar², João Gomes¹, Miguel Lança³</i> ¹ Höskolan i Gävle; ² MG Sustainable Engineering AB; ³ Instituto Superior de Engenharia de Lisboa
617 [I.I.3]	SCIENTIFIC MAPPING AND BIBLIOMETRIC ANALYSIS OF DESICCANT DRYING RESEARCH <i>Thais Dutra de Lima¹, William Magalhães Barcellos¹, Carla Freitas de Andrade¹, Francisco Nivaldo Aguiar Freire¹, Ana Fabíola Leite Almeida¹, William Neves da Silva²</i> ¹ Universidade Federal do Ceará; ² Universidade Federal de Santa Catarina
638 [H.I.9]	SOLAR ENERGY AND ENERGY STORAGE IN URBAN LOW ENERGY RENOVATION PAVES THE WAY FOR URBAN ENERGY COMMUNITIES IN THE NETHERLANDS <i>Jan Michiel Boonstra¹, Dennie Bloem²</i> ¹ TrecoDome BV; ² Bloem Engineering Energy
754 [A.I.4]	APPLICATION OF MACHINE LEARNING (KNN) WITH AUTOHYPERPARAMETER TUNING FOR HYDROGEN PRODUCTION PROBABILISTIC FORECASTING FROM WIND ENERGY <i>Tainan Sousa Viana¹, Paulo Alexandre Costa Rocha¹, Carla Freitas de Andrade¹, Andre Valente Bueno¹, Jesse Van Griensven Thé²</i> ¹ Universidade Federal do Ceará; ² University of Guelph
769 [B.I.12]	PROXIMATE ANALYSIS AND HIGHER HEATING VALUE OF WASTE BIOMASS BLENDS: AN ENERGETIC APPROACH <i>Eva Furtado de Sousa¹, Kennedy Romualdo Guedes Coimbra¹, Mauricio Dorneles Lima¹, Paloma Cavalcante Silva¹, Maria Alessandra de Sousa Rios¹</i> ¹ Universidade Federal do Ceará
777 [J.I.4]	FEASIBILITY OF GREEN HYDROGEN STORAGE IN CHILE: INFLUENCE OF ELECTROLYSIS TYPE, SOLAR IRRADIANCE, AND STORAGE TECHNOLOGY <i>Roberto Leiva-Illanes¹</i> ¹ Universidad Técnica Federico Santa María
876 [I.I.9]	METHODOLOGY FOR THE EVALUATION OF STATIC LOADS ON BIFACIAL MODULES USING A TEST BENCH <i>Clara Caroline de Araujo Azevedo¹, Bruno do Nascimento e Silva¹, Plínio José de Oliveira¹, Samira de Azevedo Santos Emiliavaca¹, Italo Sabino Arrais Bezerra², Luan Bernardo¹</i> ¹ Instituto Senai de Inovação em Energias Renováveis (ISI-ER); ² Instituto Tecnológico de Aeronáutica
878 [J.I.2]	SENSITIVITY ANALYSIS OF ONE-PHASE AND TWO-PHASE 1D PBTEs MODELS TO THERMAL PROPERTIES MODELING OF COPPER SLAG <i>Valentina Constanza Segovia Araya¹, Ignacio Calderon Vasquez¹, Jose Miguel Cardemil¹</i> ¹ Pontificia Universidad Católica de Chile
886 [A.I.5]	PREDICTING HYDROGEN PRODUCTION USING XGBOOST: A COMPARATIVE STUDY OF ENERGY CONVERSION SCENARIOS <i>Diosael Ferreira Sacramento¹, Tainan Sousa Viana¹, Paulo Alexandre Costa Rocha¹</i> ¹ Federal University of Ceará
895 [H.II.4]	ON THE THERMAL INTEGRATION OF NUCLEAR HEAT IN A SOLAR THERMAL PLANT FOR CONTINUOUS THERMOCHEMICAL PROCESSES <i>Hernando Romero Paredes Rubio¹, Juan Daniel Macias¹, José Miguel Berrio Sánchez¹, Lizbeth Monserrat Martínez Rojas¹, Gilberto Espinosa Paredes¹</i> ¹ Universidad Autónoma Metropolitana Iztapalapa



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THEME 06: RENEWABLE SYSTEMS APPLICATIONS - PART 1/3

69 [F.II.8]	SOLAR TECHNOLOGY SOILING R&D: HISTORY, PROGRESS, STATUS, AND TRENDS <u>Lawrence L. Kazmerski</u>¹, <u>Suellen C.S. Costa</u>², <u>Daniel Sena Braga</u>³, <u>Antonia Sônia A.C. Diniz</u>³ ¹ RASEI, University of Colorado Boulder; ² Matrix Energia; ³ Pontifícia Universidade Católica de Minas Gerais (PUC Minas)
163 [G.I.9]	TECHNO-ECONOMIC ANALYSIS OF A SOLAR THERMAL WATER PREHEATING SYSTEM FOR A 5 MW ELECTROLYZER IN PECÉM, BRAZIL <u>Marcos Souto Lopes Bezerra</u>¹, <u>Gustavo Azevedo Diogenes</u>¹, <u>Maria do Socorro Santos Sousa</u>¹, <u>Paulo Henrique Pereira Silva</u>¹ ¹ Universidade de Fortaleza
204 [H.I.5]	PARTICIPATORY GIS TOOL TO DEVELOP LAND-BASED SOLAR ENERGY SCENARIOS: THE EXAMPLE OF A BLACK FOREST DISTRICT IN GERMANY <u>Elham Fakharizadehshirazi</u>¹, <u>Christine Rösch</u>¹ ¹ KIT
220 [E.II.3]	TECHNICAL AND ECONOMIC EVALUATION OF IMPLEMENTING A PHOTOVOLTAIC POWER PLANT IN RIO DE JANEIRO, BRAZIL: FIXED STRUCTURE VS. SOLAR TRACKER SYSTEMS <u>Annelys Machado Schetinger</u>¹, <u>Caio Filipe Glatthardt Barbato</u>¹, <u>João Pedro Rabello de Paula Carvalho</u>¹, <u>Amaro Olimpio Pereira Junior</u>¹ ¹ Federal University of Rio de Janeiro
222 [F.II.10]	SOLAR ENERGY IN SCHOOLS: A BIBLIOMETRIC REVIEW ON THE POTENTIAL AND CHALLENGES OF PHOTOVOLTAIC SYSTEMS IN THE EDUCATIONAL ENVIRONMENT <u>Leandro Fernandes Pereira</u>¹, <u>Albemerc Moura de Moraes</u>² ¹ Universidade Estadual do Ceará; ² Universidade Federal do Piauí
231 [E.II.4]	ANALYSIS OF SOYBEAN BEHAVIOR WHEN INSERTED IN AN AGRIVOLTAIC SYSTEM <u>Bruno Jacomet Vieira</u>¹, <u>Alex Renan Arrifano Manito</u>¹, <u>Marcelo Pinho Almeida</u>¹, <u>Maurício Roberto Cherubin</u>², <u>Roberto Zilles</u>¹ ¹ IEE-USP; ² ESALQ-USP
241 [E.II.10]	FORECASTING PHOTOVOLTAIC ENERGY GENERATION USING XGBOOST: A CASE STUDY IN MARISCAL ESTIGARRIBIA, PARAGUAY <u>Eduardo Jose Riquelme Portillo</u>¹, <u>Angel Rincon Rodriguez</u>¹ ¹ Engineering Faculty of National University of Asuncion
258 [F.I.6]	IMPACTS FROM BEST PRACTICES APPLIED IN A SOLAR COOKING INITIATIVE AT KAKUMA REFUGEE CAMP, KENYA <u>Alan Bigelow</u>¹, <u>Caitlyn Hughes</u>¹ ¹ Solar Cookers International
279 [F.II.2]	FINANCIAL VIABILITY ANALYSIS OF A COMBINED ENERGY SYSTEM WITH RENEWABLES FOR A HOTEL IN JOÃO PES- SOA <u>José Luciano Batista Moreira</u>¹, <u>Eduardo Antonio Pina</u>², <u>Adriano da Silva Marques</u>¹, <u>Monica Carvalho</u>¹ ¹ UFPB; ² EPFL
287 [G.I.7]	TRACKING SYSTEM FOR PARABOLIC DISH SOLAR CONCENTRATOR: DEVELOPMENT AND EVALUATION <u>Marco Damasceno de Sousa</u>¹, <u>Adriano da Silva Marques</u>¹, <u>João Pedro Cruz de Almeida</u>¹, <u>Leonardo Pereira de Lucena Silva</u>² ¹ Federal University of Paraíba; ² Federal Institute of Paraíba - IFPB
294 [G.II.8]	AUTOMATED IRRIGATION WITH PHOTOVOLTAIC SYSTEM: SUSTAINABILITY AND EFFICIENCY IN THE RURAL AREAS OF PIAUÍ STATE <u>Renato Alexandre da Silva</u>¹, <u>Jucyara Simplicio dos Santos</u>¹, <u>Wilmar Lemos Maranhão Neto</u>¹, <u>Andressa Vivia Rodrigues de Carvalho</u>¹ ¹ UESPI
295 [E.I.11]	REGIONAL SOLAR THERMAL POTENTIAL IN UZBEKISTAN: INSIGHTS FROM USEFUL HEAT GAIN USING NANOFLUIDS <u>Dilshod Jalilov</u>¹, <u>Tukhtamurod Juraev</u>¹, <u>Akbar Halimov</u>¹, <u>Jasurjon Akhatov</u>¹ ¹ Physical-Technical Institute of the Academy of Sciences of Uzbekistan



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322 [J.I.10]	PRODUCTION OF SMALL WIND TURBINE BLADES BY 3D PRINTING: A DEVELOPED STUDY BASED ON ENERGY EFFICIENCY AND RENEWABLE ENERGY SOURCES <i>Joana Evelyn Queiroz de Sousa¹, Alexandre Sales Costa¹, <u>Carla Freitas de Andrade¹</u>, Francisco Olimpio Moura Carneiro², Mona Lisa Moura de Oliveira³</i> ¹ Universidade Federal do Ceará; ² Universidade da Integração Internacional da Lusofonia Afro-Brasileira; ³ Universidade Estadual do Ceará
372 [G.II.5]	MATHEMATICAL MODELLING AND VALIDATION OF PEM ELECTROLYZER INTEGRATED WITH A STORAGE SYSTEM <i>Nayrana Daborer-Prado¹, Lukas Gaisberger¹</i> ¹ University of Applied Sciences Upper Austria
389 [G.II.12]	EXPLORING THE POTENTIAL OF BIDIRECTIONAL CHARGING IN RESIDENTIAL BUILDINGS IN GERMANY AND BRAZIL WITH A SIMULATION TOOL <i>Moritz End¹, Tobias Rehm¹, Amanda Mendes Ferreira Gomes², Lukas Hilger¹, Aline Kirsten Vidal de Oliveira², Ricardo Rüther², Thorsten Schneiders¹</i> ¹ University of Applied Sciences Cologne; ² Solar Energy Research Laboratory Fotovoltaica/UFSC
425 [G.II.3]	SUNLIGHT HOURS AS A GUIDE: ENHANCING CROP SELECTION IN AGRIVOLTAIC FIELDS <i>Victória Maschio Chaga¹, Laís Cassanta Vidotto¹, Isadora Pauli Custódio¹, Marília Braga¹, Ricardo Rüther¹</i> ¹ Fotovoltaica/UFSC Laboratory
521 [G.I.1]	EVALUATION OF AGRICULTURAL SOLAR DRYER PERFORMANCE WITH RADIATION INTENSITY <i>Leonel Augusto Calliari Poltosi¹, Victor Emmanuel de Oliveira Gomes¹, Vitor Camargo Nardelli¹</i> ¹ SENAI RS Centro de Competência em Agricultura Digital
524 [H.I.2]	CHARACTERIZATION OF SECOND-LIFE LITHIUM-ION BATTERIES FROM A SOLAR-POWERED ELECTRIC BUS FOR STATIONARY APPLICATIONS <i>Matheus Hohmann¹, Aline Kirsten Vidal de Oliveira¹, Lucas Augusto Zanicoski Sergio¹, Daniel Odilio dos Santos¹, Leonardo Freire Pacheco², Helena Flávia Naspolini¹, Ricardo Rüther¹</i> ¹ Fotovoltaica/UFSC Laboratory; ² CELESC - Centrais Elétricas de Santa Catarina
556 [F.I.1]	ASSESSMENT OF PERFORMANCE AND SCALABILITY OF A SOLAR PUMPING SYSTEM FOR SUSTAINABLE AGRICULTURAL IRRIGATION IN URUGUAY <i>Alejandra Salome Morales Presa¹</i> ¹ UTEC
644 [F.I.11]	EXPERIMENTAL PERFORMANCE ANALYSIS OF A THERMAL ENERGY STORAGE USING PHASE CHANGE MATERIALS FOR FLEXIBLE SECTOR COUPLING IN NORDIC CLIMATES <i>Aditya Singh Suswal¹, Saman Nimali Gunasekara¹, Tomás Vieira Rocha², Justin Chiu¹, Bjorn Palm¹, Per Lundqvist¹</i> ¹ KTH Royal Institute of Technology; ² Faculdade de Engenharia da Universidade do Porto (FEUP)
704 [G.II.10]	SENSITIVITY ANALYSIS OF IRRADIANCE IN AGRIVOLTAIC SYSTEMS FOR DIFFERENT CONFIGURATIONS OF THE PHOTOVOLTAIC GENERATOR <i>Ronald Barrientos Campos¹, Marcelo Pinho Almeida², Mónica Marcela Gómez León¹</i> ¹ Universidad Nacional de Ingeniería del Perú; ² Universidade de São Paulo
731 [A.I.11]	SOPHIA OFF-GRID SOLAR POWERED SYSTEMS FOR HEALTHCARE IN AFRICA: COOLING, HEATING, AND CLEAN WATER <i>Md Mahfizur Rahman¹, Lukas Omlin¹, <u>Yvonne Isabell Baeuerle¹</u>, Mihaela Dudita-Kauffeld¹, Andreas Häberle¹</i> ¹ SPF Institute for Solar Technology
791 [G.I.11]	FIELD TESTING OF A SOLAR PASTEURIZER PROTOTYPE WITH AUTOMATED FLOW CONTROL <i>Marcos Vinícius Medeiros Araújo¹, Lucas Costa Fernandes¹, Artur Rocha Albuquerque¹, Taciano Amaral Sorrentino¹</i> ¹ Universidade Federal Rural do Semi-Árido
799 [F.I.3]	A FORECASTING ENSEMBLE MODEL BASED ON TRANSFER LEARNING FOR ENERGY SUPPLIER FROM PROFILE GEOMETRIES OF WIND TURBINES <i>Jasson Fernandez Gurgel, Felipe Cordeiro de Sousa, Pedro Lucas Barros Martins, Carla Freitas de Andrade, Francisco Olimpio Moura Carneiro</i> <i>Universidade Federal do Ceará</i>



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806 [G.I.4]	PHOTOVOLTAIC TECHNOLOGIES IN AGRIVOLTAIC SYSTEMS: A GLOBAL SYSTEMATIC REVIEW (2019-2024) <i>Lucas Alejandro Schiavoni Garracini</i> ¹ , <i>Ramiro García Orrego</i> ¹ , <i>Allan Braz da Silva Santos</i> ¹ , <i>Vívian Teixeira-Branco</i> ¹ ¹ <i>Universidad Tecnológica del Uruguay</i>
811 [E.II.8]	TECHNICAL FEASIBILITY OF IMPLEMENTING SOLAR-POWERED VESSELS IN THE LOWER TOCANTINS REGION <i>Denni D'Vitor dos Santos Viana</i> ¹ , <i>Bruna Larissa da Silva e Silva</i> ² , <i>Ivanildo dos Santos Bento</i> ³ ¹ <i>Universidade Federal do Pará</i> ; ² <i>Instituto Federal do Pará</i> ; ³ <i>Universidade Federal do Pará</i>
899 [F.II.5]	IMPACT OF COMPONENT CAPACITY ON THE PERFORMANCE OF A HYBRID PHOTOVOLTAIC SYSTEM <i>Gojmir Radica</i> ¹ , <i>Jakov Šimunović</i> ¹ , <i>Tino Vidović</i> ¹ , <i>Frano Barbir</i> ¹ ¹ <i>University of Split, Faculty of Electrical Engineering, Mechanical Engineering and Naval Architecture</i>



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51 [D.II.10]	PHOTOVOLTAIC ENERGY: STRATEGIES FOR COST REDUCTION IN PUBLIC EDUCATIONAL INSTITUTIONS <i>Raúl Eduardo Fernandez Sales¹, Grazielli Bueno²</i> ¹ Instituto Federal da Paraíba; ² Instituto Federal do Paraná
164 [E.I.9]	BEPSODOM: AN INNOVATIVE TECHNICAL PLATFORM FOR SUSTAINABLE BUILDINGS, RESILIENCE, AND SMART GRIDS IN TROPICAL CLIMATES <i>Soubdhan Ted¹</i> ¹ University of Antilles
253 [D.II.1]	BUILDING DAYLIGHT CONTROL ON WORK-PLANE ILLUMINANCE AND DISCOMFORT GLARE <i>Yujie Wu¹, Jean-Louis Scartezzini², Luoxi Hao¹</i> ¹ Tongji University; ² EPFL
442 [E.I.5]	ECOLOGICAL GUIDELINES OF PLUS-ENERGY SOLAR HOUSE ELEMENTS FOR THE CLIMATE RESILIENT VILLAGE MODEL <i>Seung-Ho Yoo¹, Sooyoung Kim¹, Ju-Young Lee¹, Sulah Chung¹</i> ¹ Yonsei University
647 [D.II.3]	RESILIENT SOLAR ENERGY FOR CLIMATE ACTION: MITIGATION AND ADAPTATION IN THE BUILT ENVIRONMENT <i>Berta García Fernández¹</i> ¹ Universidad Politécnica de Madrid
724 [E.I.2]	SOLAR RADIATION INDICES AS URBAN PLANNING TOOLS: MODELING AND APPLICATION IN FLORIANÓPOLIS <i>Renata Mansuelo Alves Domingos¹, Fernando Oscar Ruttkay Pereira¹</i> ¹ Universidade Federal de Santa Catarina
864 [D.I.5]	MATERIALS THERMAL ANALYSIS LABORATORY <i>Ana Cecilia Borbón Almada¹, Cecilia María Galindo Borbón¹, Gema Karina Ibarra Torúa¹, Nicolas Sau Soto¹, Juan Pedro Ayala Moreno¹</i> ¹ Universidad de Sonora
889 [D.II.7]	10 YEARS OF PERFORMANCE FINDINGS AT THE MINEIRÃO STADIUM SOLAR PHOTOVOLTAIC SYSTEM <i>Andre Nobre¹, Juliano M.F. Fonseca¹</i> ¹ CEMIG



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80 [D.II.11]	ANALYSIS OF LOW-CONCENTRATION SOLAR PHOTOVOLTAIC SYSTEMS: A COMPARATIVE STUDY OF CONCENTRATOR GEOMETRIES <u>Leonardo Faustino Lacerda de Souza</u> ¹ , Ikaros Teles Bezerra dos Santos Barreto ² , Chigueru Tiba ² , José Lucas Agostinho da Silva ¹ , Felipe Maia Nogueira ¹ ¹ Universidade Federal de Alagoas; ² Universidade Federal de Pernambuco
103 [J.I.6]	AEROELASTIC STABILITY OF SOLAR TRACKER: WIND TUNNEL TESTING <u>Rafael Rodrigues de Souza</u> ¹ , Jonas Wetzel ¹ , Angelo Braz Fadini Fabri ¹ , Gilcimar Saraiva Nogueira ¹ ¹ Brametal
193 [C.II.1]	DEVELOPMENT OF BIFACIAL P-PERT AND N-PERT SOLAR CELLS WITH REDUCED THERMAL PROCESSING AND COMPARISON OF BIFACIAL COEFFICIENTS <u>Izete Zanesco</u> ¹ , Adriano Moehlecke ¹ , Fábio André Biazetto ¹ , Augusto dos Santos Kochenborger ¹ , Lucas Teixeira Caçapietra Pires da Silva ¹ , João Victor Zanatta Britto ¹ , Thais Crestani ¹ , Daniel Augusto Krieger Coutinho ¹ , Vítor Gomes de Venuto ¹ ¹ Pontifical Catholic University of Rio Grande do Sul, PUCRS
214 [D.II.8]	SURGE WITHSTAND CAPABILITIES OF PHOTOVOLTAIC MODULES AND THEIR BYPASS DIODES TO LIGHTNING OVERVOLTAGES <u>Sergio Roberto Silva dos Santos</u> ¹ , Alexandre Piantini ² , Helio Eiji Sueta ² , Milton Shigihara ² , Cleiton Busse ¹ ¹ Embrastec Ind. e Com. de Equip. Eletr. Ltda; ² IEE USP
237 [H.I.3]	CFD-2D COMPUTATIONAL MODELING FOR DRAINAGE SYSTEMS IN PHOTOVOLTAIC POWER PLANTS <u>Joel Baya Kazadi</u> ¹ , <u>Gilberto Figueiredo Pinto Filho</u> ¹ , Gabriel de Carvalho Nascimento ¹ , Elson Antônio do Nascimento ¹ ¹ Fluminense Federal University
264 [G.II.11]	PASSIVE COOLING OF PHOTOVOLTAIC PANELS USING FLUID-BASED SPECTRAL BEAM SPLITTING FILTERS <u>Rafael Alejandro García Ramos</u> ¹ , <u>Carlos Ivan Rivera Solorio</u> ¹ , Miguel Angel Gijón Rivera ¹ ¹ Tecnológico de Monterrey
330 [H.I.4]	DETECTION OF DEFECTS IN PHOTOVOLTAIC MODULES THROUGH ELECTROLUMINESCENCE IMAGE ANALYSIS <u>Amanda Anaice Alvim</u> ¹ , <u>Gilberto Figueiredo Pinto Filho</u> ¹ , André da Costa Pinho ¹ ¹ Universidade Federal Fluminense
339 [G.I.2]	ANALYSIS OF PERFORMANCE LOSS OF PHOTOVOLTAIC MODULES THROUGH DARK I-V CHARACTERISTICS <u>Leonel Augusto Calliari Poltosi</u> ¹ , Arno Krenzinger ¹ , Cesar Wilhelm Massen Prieb ¹ ¹ LABSOL PPGE3M UFRGS
342 [J.I.9]	ELECTRICAL MODELING OF A BIFACIAL PV MODULE BASED ON A SINGLE DIODE MODEL AND DATA SHEET VALUES <u>Elias Salilih</u> ¹ , <u>Walter Daniel Leon Salas</u> ¹ , Pedro Flores Larico ² , Miguel Angel Vizcardo Cornejo ² , Mauricio Postigo Malaga ² , Miguel Angel Ocharan Pichu ² ¹ Purdue University; ² Universidad Nacional de San Agustín de Arequipa
366 [E.I.7]	PRESENTATION OF CCME-BASED BIDIRECTIONAL DC-DC BOOST CONVERTER WITH RECTIFIER ACTIVE BRIDGE INTEGRATION FOR CONTROL AND POWER TRANSFER AT SOURCE-TO-LOAD GATE <u>Rafael Felipe Barbosa Nunes</u> ¹ , <u>Fabiola Maria Alexandre Linard</u> ¹ , Francisco Evertom Uchoa Reis ¹ ¹ Universidade Federal do Piauí
371 [I.II.9]	INCREASE OF THERMAL TEMPERATURE IN SONOCHEMICAL DEPOSITION OF SnO ₂ THIN FILMS <u>João Pedro Santana Mota</u> ¹ , William Neves da Silva ² , Vanja Fontenele Nunes ¹ , Nichollas Rodrigues Bezerra Freitas ¹ , Ana Fabíola Leite Almeida ¹ , Carla Freitas de Andrade ¹ , Francisco Olimpio Moura Carneiro ³ , Francisco Marcione Lima ¹ , Paulo Herbert Franca Maia Junior ¹ , Francisco Nivaldo Aguiar Freire ¹ ¹ Universidade Federal do Ceará; ² Universidade Federal de Santa Catarina; ³ Universidade da Integração Internacional da Lusofonia Afro-Brasileira
388 [B.I.10]	GREEN PARKING LOT IN THE AMAZON <u>Luiz Carlos do Nascimento Borges Filho</u> ¹ , Ayrton Lucas Lisboa do Nascimento ¹ , <u>Bruno Santana de Albuquerque</u> ¹ , Carminda Célia Moura de Moura Carvalho ¹ , Maria Emília de Lima Tostes ¹ ¹ Universidade Federal do Pará



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413 [I.II.10]	SYNTHESIS AND CHARACTERIZATION OF KESTERITE INTO VACUUM FILMS <i>João Pedro Santana Mota</i>¹, <i>Paulo Herbert Franca Maia Junior</i>¹, <i>Francisco Marcone Lima</i>¹, <i>Francisco Olimpio Moura Carneiro</i>², <i>Carla Freitas de Andrade</i>¹, <i>Francisco Nivaldo Aguiar Freire</i>¹, <i>Vanja Fontenele Nunes</i>¹, <i>Ana Fabíola Leite Almeida</i>¹, <i>William Neves da Silva</i>³ ¹ Universidade Federal do Ceará; ² Universidade da Integração Internacional da Lusofonia Afro-Brasileira; ³ Universidade Federal de Santa Catarina
487 [H.II.2]	AI AND ROBOTICS: REVOLUTIONIZING SOLAR ENERGY <i>Peter Yang</i>¹ ¹ Case Western Reserve University
494 [E.I.3]	TOWARDS AN ACCURATE ASSESSMENT OF PERU'S PV POTENTIAL: COMPARING PHYSICAL, EMPIRICAL, AND ML-BASED MODELS ACROSS DIVERSE CLIMATES <i>Rafael Jesus Vidal Coral</i>¹, <i>Jose Ruben Angulo Abanto</i>¹, <i>Juan de la Casa Higuera</i>², <i>Jan Amaru Palomino Töfflinger</i>¹ ¹ Pontificia Universidad Católica del Perú; ² Universidad de Jaén
514 [E.II.1]	IRRADIANCE SENSOR IMPLEMENTATION USING COMMERCIAL BIFACIAL PV MODULES <i>Rodrigo P. Maruyama</i>¹, <i>Alex Renan Arrifano Manito</i>¹, <i>André Ricardo Mocelin</i>¹, <i>Givaldo dos Reis</i>¹, <i>Teddy Arturo Flores Meléndez</i>¹, <i>Marcelo Pinho Almeida</i>¹, <i>Roberto Zilles</i>¹ ¹ IEE-USP
531 [B.II.11]	COMPARATIVE ANALYSIS OF ENERGY PRODUCTION IN PHOTOVOLTAIC SYSTEMS WITH DIFFERENT INVERTER ARCHITECTURES: A CASE STUDY IN CENTRALIZED GENERATION <i>Camilla Domingues Albuquerque</i>¹, <i>Tiago Alves Fernandes</i>¹, <i>Beatriz Almeida Rodrigues e Silva Melo</i>¹, <i>Fabricio Bradaschia</i>¹ ¹ Universidade Federal de Pernambuco - UFPE
533 [D.II.4]	OPTIMIZING ENERGY PRODUCTION THROUGH BESS INTEGRATION IN PHOTOVOLTAIC POWER PLANTS IN BRAZIL <i>Jorge Alberto Lewis Esswein Junior</i>¹, <i>Meliza Helena Panek</i>¹, <i>Júlio César Passos</i>¹ ¹ UFSC - Universidade Federal de Santa Catarina
563 [I.II.6]	STRATEGIC TRANSITION IN ENERGY OPTIMIZATION FOR OPERATIONAL PHOTOVOLTAIC SYSTEMS: TECHNICAL ANALYSIS THAT SUPPORTS THE FINANCIAL DECISION BETWEEN MAINTAINING OPEX OF HIGH TRACKER FAILURE RATE OR INVESTING IN CAPEX OF HIGH POWER MODULES <i>Beatriz Souza Horn</i>¹ ¹ Polytechnic Institute of Bragança - IPB and Portalegre Polyth Polytechnic University - IPP
580 [G.II.1]	OPERATIONAL ANALYSIS OF THE 'WOMEN IN SOLAR ENERGY' PHOTOVOLTAIC POWER PLANT AT THE NORTH COAST CAMPUS OF FEDERAL UNIVERSITY OF RIO GRANDE DO SUL <i>Aline Cristiane Pan</i>¹, <i>Arthur Luiz Klein</i>¹, <i>Juliana Klas</i>¹ ¹ Federal University of Rio Grande do Sul
581 [B.II.12]	EVALUATING THE EFFECT OF AIR MASS ON I-V CURVES FOR DIFFERENT PHOTOVOLTAIC TECHNOLOGIES BASED ON THE NREL DATABASE <i>Tiago Alves Fernandes</i>¹, <i>Valdemar Moreira Cavalcante Junior</i>¹, <i>Beatriz Almeida Rodrigues e Silva Melo</i>¹, <i>Fabricio Bradaschia</i>¹, <i>Marcelo Cabral Cavalcanti</i>¹ ¹ Universidade Federal de Pernambuco - UFPE
594 [E.I.10]	MITIGATING THERMAL DERATING IN PHOTOVOLTAIC INVERTERS: INSIGHTS FROM A REAL GRID-CONNECTED SYSTEM <i>Beatriz Almeida Rodrigues e Silva Melo</i>¹, <i>Tiago Alves Fernandes</i>¹, <i>Elielza Moura de Souza Barbosa</i>¹, <i>Fabricio Bradaschia</i>¹, <i>Rinaldo Oliveira de Melo</i>¹ ¹ Universidade Federal de Pernambuco
606 [B.II.5]	LIMITATIONS OF COMMERCIAL IV CURVE TRACERS FOR FIELD EVALUATION OF MODERN PHOTOVOLTAIC MODULES <i>Anelise Medeiros Pires</i>¹, <i>Marília Braga</i>¹, <i>Matheus Hohmann</i>¹, <i>Helena Flávia Napolini</i>¹, <i>Ricardo Rüther</i>¹ ¹ UFSC



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628 [G.II.4]	COMPARATIVE NANOSTRUCTURING OF SILICON VIA LASER-PLASMA SYNERGY: TOWARD ENHANCED LIGHT MANAGEMENT IN PHOTOVOLTAICS <u>Nazim Aslam</u> ¹ , <u>Leonardo Sollazzo</u> ¹ , <u>Valentina Diolaiti</u> ¹ , <u>Donato Vincenzi</u> ¹ , <u>Taj Muhammad Khan</u> ² ¹ <i>Università degli Studi di Ferrara</i> ; ² <i>National Institute of Laser and Optronic, Islamabad, Pakistan</i>
648 [B.II.1]	EVALUATION OF CELL MISMATCH IN PRE-EXPOSURE PHOTOVOLTAIC MODULES USING ELECTROLUMINESCENCE IMAGING <u>Janis Joplim Bezerra Galdino</u> ¹ , <u>João Victor Furtado Frazão de Medeiros</u> ¹ , <u>Olga de Castro Vilela</u> ¹ , <u>Emerson Torres Aguiar Gomes</u> ¹ , <u>Naum Fraidenaich</u> ¹ ¹ <i>Federal University of Pernambuco (UFPE)</i>
656 [H.I.10]	IMPACTS OF CLIMATE CHANGE ON FIXED AND TRACKING SOLAR PV TECHNOLOGIES <u>Paula Conde Santos Borba</u> ¹ , <u>Andre Rodrigues Goncalves</u> ¹ , <u>Rodrigo Santos Costa</u> ¹ , <u>Francisco José Lopes de Lima</u> ¹ , <u>Meiriele Alvarenga Cumplido</u> ¹ , <u>Hallan Souza de Jesus</u> ¹ , <u>Felipe Husadel Poyer</u> ¹ , <u>Fernando Ramos Martins</u> ² ¹ <i>INPE</i> ; ² <i>UNIFESP</i>
658 [A.I.6]	ANALYSIS OF SHADING LOSSES IN A PV PLANT BUILT IN A TRANSMISSION LINE RIGHT-OF-WAY <u>Bernardo Meyer Hickel</u> ¹ , <u>João Paulo Alves Veríssimo</u> ¹ , <u>Aline Kirsten Vidal de Oliveira</u> ¹ , <u>Ricardo Rüther</u> ¹ ¹ <i>Universidade Federal de Santa Catarina</i>
660 [D.I.2]	LOW-COST METHODOLOGY FOR SERIES RESISTANCE CHARACTERIZATION IN PV DEVICES THROUGH ELECTROLUMINESCENCE IMAGING <u>José Raymundo de Alcântara Neto</u> ¹ , <u>Douglas Bressan Riffel</u> ¹ , <u>Adriano Moraes da Silva</u> ¹ ¹ <i>Universidade Federal de Sergipe</i>
678 [E.II.11]	RELIABILITY ANALYSIS OF PV STRINGS ALONG THE YEARS <u>Lenin Patricio Jiménez Jiménez</u> ¹ , <u>Gustavo Fraidenaich</u> ¹ , <u>João Lucas de Souza Silva</u> ¹ , <u>Tárcio André dos Santos Barros</u> ¹ ¹ <i>State University of Campinas</i>
683 [C.II.4]	ARTIFICIAL INTELLIGENCE FOR PREDICTIVE GENERATION AND MAINTENANCE OF PHOTOVOLTAIC POWER PLANTS <u>Valdemar Norberto Sens Neto</u> ¹ , <u>Aline Kirsten Vidal de Oliveira</u> ¹ , <u>Cezar Augustus Essenfelder de Azevedo</u> ² , <u>Ricardo Rüther</u> ¹ ¹ <i>Universidade Federal de Santa Catarina</i> ; ² <i>AXS Energia</i>
708 [I.I.8]	R&D ACTIVITIES ON PHOTOVOLTAICS AT CNEA - ARGENTINA <u>Juan Plá</u> ¹ , <u>Mariana Tamasi</u> ¹ , <u>Mariela Videla</u> ¹ , <u>Analía Moreno</u> ¹ , <u>Ismael Eyras</u> ¹ , <u>Martha Diaz Salazar</u> ¹ , <u>Claudio Bolzi</u> ¹ , <u>José Olima</u> ¹ , <u>Juan Ignacio Pérez</u> ¹ , <u>Nadia Kondratiuk</u> ¹ , <u>Julio Durán</u> ¹ , <u>Monica Gladys Martinez Bogado</u> ¹ ¹ <i>Solar Energy Department - CNEA</i>
713 [H.I.8]	TECHNOLOGICAL FEASIBILITY INDICATOR OF PHOTOVOLTAIC CELLS FOR TROPICAL CLIMATES: AN ANALYSIS APPLIED TO THE BRAZILIAN SOLAR BELT <u>Gabriel Pereira Ugucioni Rocha</u> ¹ , <u>Gabriela Nascimento Pereira</u> ¹ , <u>Matheus Bisolotti do Carmo</u> ¹ , <u>Carlos Victor do Rego Brandao</u> ¹ , <u>Murilo Bonetto</u> ¹ , <u>Edinaura Battisti</u> ¹ , <u>Everton Luis Fardin</u> ¹ ¹ <i>Sengi Solar</i>
718 [I.I.5]	DECIPHERING THE POWER REDUCTION DUE TO TEMPERATURE IN COMMERCIAL PHOTOVOLTAIC INVERTERS <u>Geyciane Pinheiro de Lima</u> ¹ , <u>Diego Lucas de Carvalho Martinez</u> ¹ , <u>Alan Marques Leal de Sousa</u> ¹ , <u>João Pedro Carvalho Silveira</u> ¹ , <u>Pedro José dos Santos Neto</u> ¹ , <u>Tárcio André dos Santos Barros</u> ¹ ¹ <i>Universidade Estadual de Campinas - UNICAMP</i>
722 [B.II.8]	TECHNICAL PROCEDURES FOR GUARANTEEING PERFORMANCE AND CONFORMITY IN PHOTOVOLTAIC MODULES <u>Camila Fernanda Cardoso Teixeira</u> ¹ , <u>Amanda Gomes Barboza</u> ¹ , <u>Dayane Cynthia Pinto Oliveira</u> ¹ , <u>Alan Rodrigues de Sousa</u> ¹ , <u>Nicholas Medeiros Lopes</u> ¹ , <u>Samira de Azevedo Santos Emiliavaca</u> ¹ , <u>Thiago de Oliveira Alves Rocha</u> ² ¹ <i>Instituto Senai de Inovação em Energias Renováveis (ISI-ER)</i> ; ² <i>Universidade Federal do Rio Grande do Norte - UFRN</i>



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726 [H.II.7]	COMPARATIVE ANALYSIS OF THE DYNAMIC EFFICIENCY OF COMMERCIAL PHOTOVOLTAIC INVERTERS UNDER STANDARDIZED IRRADIANCE PROFILES <u>Geovana da Cunha Soares</u> ¹ , Geyciane Pinheiro de Lima ¹ , Diego Lucas de Carvalho Martinez ¹ , Pedro José dos Santos Neto ¹ , João Pedro Carvalho Silveira ¹ , Tarcio André dos Santos Barros ¹ ¹ Universidade Estadual de Campinas
735 [F.I.12]	DYNAMIC PERFORMANCE EVALUATION OF A TRANSPORTABLE ENERGY STORAGE SYSTEM SUPPLYING OFF-GRID LOADS <u>Vinicius Hirassaki</u> ¹ , João Pedro Frederico de Abreu ¹ , Lucas Hack de Souza Neto ¹ , Angélica Paula Caús ¹ , Gabriel Wolf Bortoluzzi ¹ , Helena Flávia Napolini ¹ , Antônio Felipe da Cunha de Aquino ¹ , Leonardo Freire Pacheco ² , Ricardo Rüther ¹ ¹ The Federal University of Santa Catarina; ² CELESC Distribuição Ltda
739 [B.I.2]	BEYOND 1 SUN: EVALUATING THE EFFICIENCY OF PERC AND TOPCON SILICON DEVICES UNDER OVER-IRRADIANCE CONDITIONS <u>Marília Braga</u> ¹ , Ana Carolina de Oliveira Machado ¹ , Ícaro Eiras da Cunha ¹ , Anelise Medeiros Pires ¹ , Helena Flávia Napolini ¹ , Ricardo Rüther ¹ ¹ UFSC
756 [G.II.9]	PERFORMANCE AND DEGRADATION OF SEMI-FLEXIBLE MODULES IN NAUTICAL APPLICATIONS: A CASE STUDY OF THE ARARIBOIA TEAM'S CATAMARAN <u>Moisés Moreira de Moura</u> ¹ , Lucas Alves de Melo Vale ¹ , Daniel Henrique Nogueira Dias ¹ , Alexandre de Arruda Bitencourt ¹ , Amanda Anaice Alvim ¹ , Gilberto Figueiredo Pinto Filho ¹ , Gabriel Toledo Rangel Ferreira ¹ ¹ Universidade Federal Fluminense - UFF
757 [D.I.3]	DETECTION OF HOT SPOTS ON PHOTOVOLTAIC MODULES IN A SOLAR POWER PLANT BY MEASURING THE DISSIMILARITY OF THERMAL IMAGES TAKEN BY DRONE <u>Michel Santana Teodoro</u> ¹ , João Roberto dos Santos Neto ¹ , Douglas Bressan Riffel ¹ ¹ Universidade Federal de Sergipe (UFS)
765 [A.I.3]	ANALYSIS OF THE EFFECT OF POTENTIAL-INDUCED DEGRADATION IN COMMERCIAL PHOTOVOLTAIC MODULES WITH P-TYPE AND N-TYPE CELLS <u>Thalys Luan Bezerra Lima</u> ¹ , Fernando Schuck de Oliveira ¹ , Mendelsson Rainer Macedo Neves ¹ , Diego Lucas de Carvalho Martinez ¹ , Pedro José dos Santos Neto ¹ , Tarcio André dos Santos Barros ¹ ¹ Universidade Estadual de Campinas
781 [G.I.10]	OPTIMIZATION OF THE TILT ANGLE OF RESIDENTIAL PHOTOVOLTAIC PANELS CONSIDERING DUST ACCUMULATION <u>Anthony Serafini Curioni</u> ¹ , Allan R. Starke ¹ , Alexandre Kupka da Silva ¹ ¹ Federal University of Santa Catarina
783 [B.I.4]	DYNAMIC PERFORMANCE ANALYSIS OF A DISTRIBUTION FEEDER WITH A TRANSPORTABLE BATTERY STORAGE SYSTEM <u>Lucas Hack de Souza Neto</u> ¹ , Helena Flávia Napolini ¹ , Antônio Felipe da Cunha de Aquino ¹ , Vinicius Hirassaki ¹ , João Pedro Frederico de Abreu ¹ , Angélica Paula Caús ¹ , Gabriel Wolf Bortoluzzi ¹ , Leonardo Freire Pacheco ¹ , Ricardo Rüther ¹ ¹ Universidade Federal de Santa Catarina
785 [D.I.10]	MODELING OF PHOTOVOLTAIC SYSTEMS AND PARAMETER EXTRACTION USING THE ANT COLONY OPTIMIZATION ALGORITHM <u>Arlon Natã Alves Granja Delmondes</u> ¹ , Luis Arturo Gómez Malagón ¹ ¹ University of Pernambuco - POLI
789 [I.II.2]	ANALYSIS AND COMPARISON BETWEEN BIFACIAL AND MONOFACIAL PHOTOVOLTAIC MODULES USING DIFFERENT INSTALLATION PARAMETERS IN LOW LATITUDE REGIONS: A CASE STUDY FOR NORTHEASTERN BRAZIL <u>Ryan Neves Santos</u> ¹ , Janis Joplim Bezerra Galdino ¹ , Emerson Torres Aguiar Gomes ¹ ¹ Federal University of Pernambuco



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793 [H.II.11]	POWER PERFORMANCE ASSESSMENT IN A GRID-CONNECTED PV SYSTEM IN THE BRAZILIAN NORTHEAST <i>Emilly Raquel Oliveira da Silva</i> ¹ , <i>Diego Rodrigues de Miranda</i> ² , <i>Lucas Emanuel Almeida Barboza</i> ¹ , <i>Leonardo José de Petribú Brennand</i> ¹ , <i>Olga de Castro Vilela</i> ¹ , <i>Alexandre Carlos Araújo da Costa</i> ¹ ¹ Universidade Federal de Pernambuco; ² DLR Institute of Networked Energy Systems
863 [D.I.6]	SONOCHEMICAL SYNTHESIS AND CHARACTERIZATION OF $\text{La}_2\text{Zr}_2\text{O}_7:\text{Eu}^{3+}$ LUMINESCENT MATERIALS FOR ENHANCED PHOTOANODES IN DYE-SENSITIZED SOLAR CELLS <i>Joao Dionizio de Melo Neto</i> ¹ , <i>Felipe Rodrigues da Silva</i> ¹ , <i>Handerson José dos Prazeres</i> ² , <i>Rodrigo Franco Cavalcante</i> ³ , <i>William Neves da Silva</i> ⁴ , <i>João Pedro Santana Mota</i> ¹ , <i>Antônio Cleibo dos Santos Júnior</i> ¹ , <i>Vanja Fontenele Nunes</i> ¹ , <i>Paulo Herbert Franca Maia Junior</i> ¹ , <i>Francisco Marcone Lima</i> ¹ , <i>Ana Fabíola Leite Almeida</i> ¹ , <i>Juscelino Chaves Sales</i> ⁵ , <i>Francisco Nivaldo Aguiar Freire</i> ¹ ¹ Federal University of Ceará; ² Federal University of Rio Grande do Norte; ³ Federal Institute of Ceará; ⁴ Federal University of Santa Catarina; ⁵ State University of Vale do Acaraú
870 [G.I.8]	EXPERIMENTAL PERFORMANCE OF A BIFACIAL PHOTOVOLTAIC MODULE UNDER STC CONDITIONS: EVALUATION OF BIFACIALITY AND REAR IRRADIANCE GAIN <i>Amanda Gomes Barboza</i> ¹ , <i>Dayane Cynthia Pinto Oliveira</i> ¹ , <i>Camila Fernanda Cardoso Teixeira</i> ¹ , <i>Alan Rodrigues de Sousa</i> ² , <i>Nicholas Medeiros Lopes</i> ² , <i>João Vítor Fonseca de Mendonça</i> ² , <i>Samira de Azevedo Santos Emiliavaca</i> ² ¹ Instituto Senai de Inovação em Energias Renováveis (ISI-ER); ² Instituto Senai de Inovação em Energia
871 [I.I.1]	PERFORMANCE ANALYSIS AND DIAGNOSIS OF A PHOTOVOLTAIC MODULE WITH SPONTANEOUS CRACKING <i>Nicholas Medeiros Lopes</i> ¹ , <i>Camila Fernanda Cardoso Teixeira</i> ¹ , <i>Alan Rodrigues de Sousa</i> ¹ , <i>Dayane Cynthia Pinto Oliveira</i> ¹ , <i>Amanda Gomes Barboza</i> ¹ , <i>Samira de Azevedo Santos Emiliavaca</i> ¹ , <i>João Vítor Fonseca de Mendonça</i> ¹ , <i>Ana Cleide Bezerra Amorim</i> ¹ ¹ Instituto Senai de Inovação em Energias Renováveis (ISI-ER)
901 [I.II.4]	HIGHLY EFFICIENT AND STABLE ORGANIC SOLAR CELLS WITH SnO_2 ELECTRON TRANSPORT LAYER ENABLED BY UV-CURING ACRYLATE OLIGOMERS <i>Mwende Mbilo</i> ¹ , <i>Du Hyeon Ryu</i> ² , <i>Seungjin Lee</i> ² , <i>Muhammad Haris</i> ² , <i>Julius M. Mwabora</i> ¹ , <i>Robinson Musembi</i> ¹ , <i>Hang Ken Lee</i> ² , <i>Sang Kyu Lee</i> ² , <i>Chang Eun Song</i> ² , <i>Won Suk Shin</i> ² ¹ University of Nairobi; ² Advanced Energy Materials Research Center, Korea Research Institute of Chemical Technology (KRICT)



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THEME 07: MICROGRIDS AND GRID INTERACTION

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355 [C.I.10]	LOW VOLTAGE NON-ISOLATED MICROGRID INTEGRATION FOR INCREASED RELIABILITY IN BRAZIL: AN ECONOMIC PERSPECTIVE FOR UTILITIES <u>Pedro Ferreira Torres</u> ¹ , <u>João Tavares Pinho</u> ¹ , <u>Roberto Zilles</u> ¹ ¹ Universidade de São Paulo
440 [F.I.9]	QUANTIFYING POWER QUALITY IN STAND-ALONE MINIGRIDS USING FUZZY POWER QUALITY INDICES: A CASE OF ILLAUT MINIGRID IN SUB-SAHARAN AFRICA <u>Duncan Elia Nkolokosa</u> ¹ , <u>Sebastian Waita</u> ¹ , <u>Mutugi Kiruki</u> ¹ , <u>Walbermark Marque do Santos</u> ² ¹ University of Nairobi; ² Federal University of Espirito Santo
449 [F.II.4]	SUSTAINABLE RESIDENTIAL POWER: HYBRID INVERTERS FOR ON/OFF-GRID FLEXIBILITY <u>Israel Franklin Dourado Carrah</u> ¹ , <u>Dalton Honorio</u> ¹ , <u>Ernande Eugenio Campelo Morais</u> ¹ ¹ Federal University of Ceará
459 [F.II.7]	DATA ACQUISITION OF PHOTOVOLTAIC SYSTEMS USING WIRELESS COMMUNICATION - LORA <u>Antonio Neilton da Silva</u> ¹ , <u>Robert Kawe Linhares Nobre</u> ¹ , <u>Marcello Anderson Ferreira Batista Lima</u> ² , <u>Paulo Cesar Marques de Carvalho</u> ¹ , <u>Newton Rogério de Freitas Raulino</u> ² ¹ Universidade Federal do Ceará; ² Instituto Federal de Educação, Ciência e Tecnologia do Ceará
607 [F.II.11]	PREVENTING REVERSE POWER FLOW BY OPTIMAL COORDINATION OF PV FEED-IN: A CASE STUDY IN SOUTHERN BRAZIL <u>Vinícius Hirassaki</u> ¹ , <u>André Ulrich</u> ² , <u>Sascha Birk</u> ² , <u>Thorsten Schneiders</u> ² ¹ The Federal University of Santa Catarina; ² University of Applied Sciences Cologne
614 [J.I.3]	INTEGRATION OF NON-CONVENTIONAL RENEWABLE ENERGY SOURCES INTO AN OFF-GRID SYSTEM FOR THE GENERATION OF GREEN ELECTRICITY AND HYDROGEN <u>Roberto Leiva-Illanes</u> ¹ ¹ Universidad Técnica Federico Santa María
663 [F.I.2]	SIMULATION AND ANALYSIS OF CURRENT RIPPLE IN AN EXPERIMENTAL DC NANOGRID <u>João Paulo de Andrade Machado</u> ¹ , <u>Victor Parente de Oliveira Alves</u> ¹ , <u>Arthur Correa da Fonseca</u> ¹ , <u>Wilson Negrão Macedo</u> ¹ , <u>Marcos André Barros Galhardo</u> ¹ ¹ GEDAE-UFPA
674 [C.II.9]	APPLYING FAILURE MODE AND EFFECTS ANALYSIS (FMEA) TO COMMUNITY SOLAR MINI-GRIDS: A PROOF OF CONCEPT <u>Omkar Nandkishor Buwa</u> ¹ , <u>Anand Bhalchandra Rao</u> ¹ , <u>Nadege Versheri</u> ² , <u>James Katende</u> ² ¹ Indian Institute of Technology Bombay; ² Namibia Institute of Science and Technology
682 [C.II.5]	PERFORMANCE ANALYSIS OF STANDALONE PHOTOVOLTAIC SYSTEMS (SIGFIS) IN THE BRAZILIAN AMAZON <u>Valdemar Norberto Sens Neto</u> ¹ , <u>Aline Kirsten Vidal de Oliveira</u> ¹ , <u>Ricardo Rüther</u> ¹ ¹ Universidade Federal de Santa Catarina
729 [F.II.12]	DEVELOPMENT AND EMERGENCY APPLICATION ASSESSMENT OF A TRANSPORTABLE BATTERY ENERGY STORAGE SYSTEM WITH FIRST- AND SECOND-LIFE LITHIUM-ION BATTERIES <u>Daniel Odilio dos Santos</u> ¹ , <u>Helena Flávia Napolini</u> ¹ , <u>Aline Kirsten Vidal de Oliveira</u> ¹ , <u>Matheus Hohmann</u> ¹ , <u>Vinícius Hirassaki</u> ¹ , <u>Leonardo Freire Pacheco</u> ² , <u>Ricardo Rüther</u> ¹ ¹ Universidade Federal de Santa Catarina; ² CELESC Distribuição S.A.
766 [E.II.5]	APPLICATION OF THE IEC 61850-7-420 STANDARD IN THE MODELING OF DISTRIBUTED ENERGY RESOURCES IN PHOTOVOLTAIC MICROGRIDS <u>Amanda Carvalho Alexandre</u> ¹ ¹ Universidade Federal do Ceará



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A.I	47	52	765	754	886	658		621	119	590	731	88
B.I	154	739	538	783	629	723		902	475	388	167	769
B.II	648	138	299	419	606		884	722	622	624	531	581
C.I	301	557	742	118	211		190	445	778	355	74	203
C.II	193	898	894	683	682	296		137	674	109	659	887
D.I	485	660	757	415	864	863		247	148	785	470	123
D.II	253	159	647	533	999		889	214	151	51	80	452
E.I	523	724	494	368	442		366	561	164	594	295	271
E.II	514	333	220	231	766	218		811	642	241	678	410
F.I	556	663	799	600	199	258		709	440	609	644	735
F.II	634	279	99	449	899		459	69	436	222	607	729
G.I	521	339	597	806	507		287	870	163	781	791	701
G.II	580	144	425	628	372	456		294	756	704	264	389
H.I	265	524	237	330	204	776		713	638	656	601	790
H.II	91	487	482	895	752		726	114	58	359	793	289
I.I	871	763	617	508	718		547	708	876	312	747	800
I.II	183	789	740	901	244	563		490	371	413	866	875
J.I	727	878	614	777	266	103		341	342	322	555	