

Wednesday, April 12 2023

14:00 - 14:30

Opening Session

14:00

Welcome to AgriVoltaics2023

B. Feuerbach, Conexio-PSE

14:05

Welcome Words by Conference Chair

J.H. Jung, Yeungnam University

14:15

Welcome Words by Yeungnam University

Seung Woo Park, Executive Vice President of Yeungnam University

14:25

In Memory of Prof. Dr. Goetzberger

M. Trommsdorff, Fraunhofer ISE

14:30

Session Recording: Opening

14:30 - 15:30

Legal Framework & Public Policies

**Chair: Andrea Gerlak, University of Arizona
and Jae Hak Jung, Yeungnam University**

14:30

AgriVoltaics at the U.S. Department of Energy

M. Boyd

U.S. Department of Energy

14:45

The Socio-Technical Dynamics of Agrivoltaics in Japan

C. Doedt¹, M. Tajima², T. Iida²

¹Institute for Sustainable Energy Policies; ²Japan Community Power Association

15:00

Sharing Global Expertise on Agrivoltaics With AiDO:

AgriVoltaics International Discussion Group

Ö. Emre

Presented by Ö.E. Özdemir²

Fraunhofer-Gesellschaft zur Förderung der angewandten Forschung e. V.; ²Fraunhofer ISE

15:15

New Legal Framework of Agrivoltaics in Germany

M. Trommsdorff

Presented by M. Trommsdorff

Fraunhofer ISE

15:30

Session Recording: Legal Framework & Public Policies

15:30 - 16:30

Environmental Modeling

**Chair: Christelle Lecoindre, TotalEnergies
and Christian Doedt, Institute for
Sustainable Energy Policies**

- 15:30 Vertical Agrivoltaic System – On-Site Measurement and Prediction of the Influence of Crops Albedo on Photovoltaic Energy Yield
A. Poquet
TotalEnergies
- 15:45 Protecting Flowers of Fruit Trees From Frost With Dynamic Agrivoltaic Systems
G. Lopez¹, P. Juillion¹, V. Hitte¹, Y. Elamri¹, V. Liesnak², Y. Montrognon³, J. Chopard¹, S. Persello¹, D. Fumey¹
¹Sun'Agri; ²La Pugere; ³SEFRA
- 16:00 Modelling Light Interception by Rows of Crops in an Agri-PV System
B. Van Aken
TNO - Energy Transition
- 16:15 Quantifying the Distribution of Evapotranspiration At PV and APV Sites Using Soil Moisture
U. Feistel¹, S. Kettner¹, J. Ebermann¹, F. Müller¹, E. Krajcsi¹
¹HTW Dresden
- 16:15 Session Recording: Environmental Modeling
- 16:30 - 17:00 **Coffee Break**

17:00 - 18:30

Plant & Crop Physiology (1)

Chair: Christian Dupraz, INRAE

- 17:00 Innovation in the Structure Design of an Agrivoltaic System for a Vineyard in Mendoza, Argentina
A.C. Rezinovsky¹, O. Cristofanelli¹, J. Pérez², G. Acosta³, R. Aguilera⁴, M. Cavagnaro⁴, M. Cavagnaro⁴, C. Flores⁴, A. Caretta⁴, V. Hidalgo⁴, N. Calderon⁴, V. Santander⁴, N. Pizzolon⁴
¹Facultad de Artes y Diseño; ²INNELEC; ³Instituto Nacional de Tecnología Agropecuaria; ⁴Facultad de Ciencias Agrarias
- 17:15 PV Tracking Yields Dynamic Patterns of Crop Productivity and Water Use Across Single Days and Over Growing Seasons
G. Barron-Gafford¹, N. Rouini², K. Lepley², P. Murphy², C. Ortega², A. Salazar², M. Caley³, L. McConnell³, B. Kominek⁴, J. Macknick⁵
¹University of Arizona; School of Geography, Development, & Environment; ²University of Arizona; ³Sprout City Farms; ⁴Jack's Solar Garden; ⁵National Renewable Energy Lab
- 17:30 Salad Yields Under Agrivoltaics: a Field Test
A. Dal Prà¹, N. More^{1'2}
Presented by N. More^{1'2}
¹stitute of BioEconomy-National Research Council(CNR-IBE); ²REM TEC SRL

17:45 Food-energy-water results from raised-system agrivoltaics at Sustainable Agriculture Tanzania
R. Randle-Boggis¹, A. Mbele², J. Maro², A. Kimaro³, S. Hartley¹
¹ University of Sheffield; ² Sustainable Agriculture Tanzania; ³ World Agroforestry (ICRAF)

18:00 Session Recording: Plant & Crop Physiology (1)

18:30 - 19:30 **Dinner Break**

19:30 - 21:00 **Promotion & Dissemination**
Chair: Max Trommsdorff, Fraunhofer ISE and Veronica Bermudez Benito, Qatar Environment and Energy Research Institute

19:30 Strategies and Technologies to Achieve a European Fossil-Energy-Free Agriculture

A. Balafoutis¹, K. Vaiopoulos¹, F. Vandorou¹, D. Rutz², C. Ma²

Presented by K. Vaiopoulos¹

¹ CENTRE FOR RESEARCH AND TECHNOLOGY-HELLAS (CERTH) / Institute for Bio-Economy and Agri-Technology; ² WIP - Renewable Energies

19:45 From Niche-innovation to Mainstream Markets: Drivers and Challenges of Industry Adoption of Agrivoltaics in the U.S.

A. Pascaris¹, A. Gerlak², G. Barron-Gafford²

¹ AgriSolar Consulting; ² University of Arizona

20:00 Creating Personas for Better Stakeholder Acceptance of Socially Needed System Disruptive Innovations

G. Torma¹, J. Aschemann-Witzel¹

¹ Aarhus University

20:15 Mapping Agrivoltaic Sites Across the United States

H. Paterson¹, J. Macknick¹, H. Fields¹

Presented by H. Paterson¹

¹ National Renewable Energy Laboratory

20:30 A Gridded Simulation Model for Regional Assessment of Agrivoltaic Systems: Towards the Implementation of a Decision Support System

P.E. Campana

Presented by P.E. Campana²

¹ Mälardalen University (EST); ² Mälardalen University

20:45 Session Recording: Promotion & Dissemination

Thursday, April 13 2023

10:00 - 12:00 **Networking Brunch**

12:00 - 14:00 **Asia Session**

Chair: Makoto Tajima, Institute for Sustainable Energy Policies and Wen Liu, University of Science and Technology of China

- 12:00 Prediction of Cultivation Under Photovoltaic Modules
T. Toyoda¹, D. Yajima¹, K. Araki¹, K. Nishioka¹
Presented by T. Toyoda¹
¹ University of Miyazaki
- 12:15 A Development of an Agrivoltaic System Prediction Software
J. Kang¹, J. Lee¹
Presented by J. Kang²
¹ Envelops Co. Ltd.; ² Envelops Co., Ltd.
- 12:30 The Mitigating Measures for Aquavoltaics Development in Southwest Taiwan
C. Liu
Industrial Technology Research Institute
- 12:45 Research on Evaluation Indicators of Agrivoltaics
L. Fan¹, X. Zhang¹, A. Ali Abaker Omer¹, W. Liu²
Presented by W. Liu²
¹ University of Science and Technology of China; ² University of Science and Technology of China (USTC)
- 13:00 SCAPV Creates the Possibility of Less Irrigation and Higher Productivity
A. Ali Abaker Omer¹, M. Li¹, F. Chen¹, W. Liu¹, J. Ingenhoff¹, L. Fan¹, F. Zhang¹, X. Zhang¹, J. Zheng¹, Z. Zhang¹
Presented by W. Liu¹
¹ University of Science and Technology of China
- 13:15 Crop Adaptation to Agrivoltaics System: Sun-Tracking Algorithm Based on Plants' Light Requirements, Case of Citrus Trees
E. Raveh
Gilat Research Center for Arid & Semi-Arid Agricultural Research
- 13:30 Session Recording: Asia Session
- 14:00 - 15:00 **Potential for World Economy and Ecosystems**
Chair: Bar Weiss, Tel-Aviv University / Sun'Agri and Jinsuk Kang, Envelops Co. Ltd
- 14:00 A Method for Spatial Potential Analyses of Agrivoltaic Systems
S. Hauger¹, L. Bieber²
¹ Fraunhofer ISE; ² Fraunhofer Institute for Solar Energy Systems ISE

- 14:15 Agrivoltaics Over Berries in Chile: Potential for Clean Energy Generation and Climate Change Adaption
D. Jung¹, F. Schoenberger¹, F. Moraga¹
 Presented by D. Jung²
¹Fraunhofer Chile Research; ²Fraunhofer Chile Research - Center for Solar Energy Technologies
- 14:30 The Potential for Agrivoltaics to Alleviate "Food vs Fuel" Land Use Conflicts in Great Britain
T. Neesham-McTiernan¹, R. Randle-Boggis¹, A. Buckley¹, K. Parkhill², S. Hartley¹
¹The University of Sheffield; ²The University of York
- 14:45 Potential Analysis of Agrivoltaics in Austria in the Context of Climate Change (PA³C³)
T. Krexner¹, I. Kral¹, C. Mikovits², J. Schmidt², M. Schönhart², T. Schauppenlehner³, E. Schmid², A. Gronauer¹, A. Bauer¹
¹Institute of Agricultural Engineering, BOKU; ²Institute of Sustainable Economic Development, BOKU; ³Institute of Landscape Development, Recreation and Conservation Planning, BOKU
- 15:00 Session Recording: Potential for World Economy and Ecosystems
- 15:00 - 15:30 **Coffee Break**
- 15:30 - 17:00 Economics and Business Models**
Chair: Stephan Schindele, BayWa r.e. and Max Trommsdorff, Fraunhofer ISE
- 15:30 Economic Tradeoffs of Utility-Scale Agrivoltaic Configurations in the U.S.
D. Al Mukhaini¹, J. McCall¹
 Presented by J. McCall¹
¹National Renewable Energy Laboratory
- 15:45 Agrivoltaics Behavioral Economics – Case Study With Israeli Farmers
B. Weiss¹, R. Fishman², Z. Grinhut³, O. Mendelsohn²
¹Tel-Aviv University / Sun'Agri; ²Tel-Aviv University; ³Israeli Ministry of Agriculture
- 16:00 Business Case of Agri-PV Systems
W. Eerenstein¹, F. De Ruiter²
¹Reenergize Consultancy; ²Wageningen University and Research
- 16:15 SPADE - Agrivoltaic Design and Analysis Software Tool
T. Hickey¹, I. Skor², A. Pascaris³
¹Colorado State University / SPADE; ²Sandbox Solar; ³Agrisolar Consulting

- 16:30 Customized Module Tracking for Optimizing Food-Energy Yield and Economic Performance in Agrivoltaic Systems
H. Alam¹, N. Butt¹
¹Lahore University of Management Sciences (LUMS)
- 16:45 The 5 Cs of Agrivoltaic Success Factors in the United States: Lessons From the InSPIRE Research Study
J. Macknick
National Renewable Energy Lab
- 17:00 Session Recording: Economics and Business Models

17:00 - 18:30

Industry Session

Chair: Christian Dupraz, INRAE and Jordan Macknick, National Renewable Energy Laboratory

- 17:00 BayWa r.e.
Y. Bae, BayWa r.e.
- 17:10 REM Tec
R. Knoche, REM TEC SRL
- 17:20 OET
E. Athanasiadou, Organic Electronic Technologies
- 17:27 RWE
G. von Danwitz, RWE Renewables GmbH
- 17:34 SolarEdge
N. Schwartz, SolarEdge
- 17:41 Kelfield
H. von Wieding, Kelfield Sp. z o.o
- 17:46 Next2Sun
S. Krause-Tuenker, Next2Sun AG
- 17:51 Session Recording: Industry Session

18:30 - 19:30 **Dinner Break**

19:30 - 21:15

Plant & Crop Physiology (2)

Chair: Damien Fumey, Sun'Agri and Greg Barron-Gafford, The University of Arizona

- 19:30 Vegetable Crop Growth Under Three Photovoltaic Module Types, Results From a 2-Year Study
T. Hickey¹, M. Uchanski²
¹Colorado State University / SPADE; ²Colorado State University

- 19:45 Crop Production At a Bifacial Solar Array in Golden, Colorado
H. Paterson¹, J. Macknick¹, B. Staie¹, A. Kinzer¹, J. McCall¹
 Presented by H. Paterson¹
¹National Renewable Energy Laboratory
- 20:00 Measurement of Light Interception by Crops Under Solar Panels Using PARbars
F. de Ruijter¹, B. Maestrini¹, B. Meurs¹, M. Hermelink¹, H. Helsen¹
¹Wageningen University & Research
- 20:15 Specific Leaf Area and Photosynthesis of Apple Trees Under a Dynamic Agrivoltaic System
P. Juillion¹, G. Lopez¹, G. Vercambre², M. Génard², V. Lesniak³, D. Fumey¹
¹Sun'Agri; ²INRAE-UR1115 (PSH); ³Domaine expérimental de la Pugère
- 20:30 Field Phenotyping Rail System and Photosynthesis of Vicia Faba Under Agriphotovoltaics
O. Muller¹, C. Jedmowski¹, C. Mueller¹, K. Hoelscher¹, M. Quarten¹, M. Berwind², U. Schurr¹, U. Rascher¹, M. Meier-Gruell¹
¹Forschungszentrum Juelich; ²Fraunhofer Institute of Solar Energy Systems
- 20:45 Characteristics of Grapevines and Berries in the Vineyards Under the Agrivoltaic Solar Panels
H.K. Yun¹, S.Y. Ahn¹, Z.L. Myint¹, B.M. Kim¹, W. Oh², J.H. Jung¹
¹Yeungnam University; ²Jeju National University
- 21:00 Dynamic Agrivoltaics With Raspberry Crops: Field Trial Results
M. Duchemin¹, G. Nardin¹, M. Ackermann¹, D. Petri², J. Levrat², D. Chudy², M. Despeisse², C. Ballif², M. Baumann³, B. Christ³, A. Ançay³, C. Carlen³
¹Insolight; ²CSEM; ³Agroscope
- 21:15 Session Recording: Plant & Crop Physiology (2)

Friday, April 14 2023

08:00 - 12:00 **Technical Tour**

12:00 - 13:00 **Lunch Break**

13:00 - 15:00 **Poster Session**

A-03 Evaluation of the German Agrivoltaics Innovation Tender 2022 and Overview About the Agrivoltaics Development in Germany
C. Pump¹, M. Trommsdorff¹, V. Beckmann², T. Bretzel¹, L. Bieber¹, Ö.E. Özdemir¹
¹Fraunhofer ISE; ²University of Greifswald

- A-07 The Issues of Aquavoltaics Development in South-West Taiwan Discovered Through Policy Tool
P. Lee
Industrial Technology Research Institute
- A-08 An Agrivoltaic Atlas for Public Education
K. Lepley¹, C. Ortega¹, G. Barron-Gafford¹
¹University of Arizona
- A-09 FOSS-Based Bibliometric System to Track the Evolution of Agrivoltaics Research – Preliminary Results and Roadmap
M. Blanco¹, N. Hanrieder¹, A. Kujawa¹, S. Wilbert¹, J.A. Carballo², M. Perez³, J.A. Sanchez³
¹German Aerospace Center (DLR), Institute of Solar Research; ²Centro de Investigaciones Energéticas, Medioambientales y Tecnológicas (CIEMAT); ³Universidad de Almería. Automatic Control, Robotics and Mechatronics (ARM) Group.
- A-10 The Agrisolar Clearinghouse: Creating Community, Resources, and Support Through an Information-Sharing, Networking, Education, and Outreach Hub for All Things Agrisolar
S. Peterson
National Center for Appropriate Technology
- B-03 Grid Integration Impacts of Vertical Bifacial Agri-Photovoltaics
S. Lahr¹, R. Fritz²
¹Next2Sun AG; ²Fraunhofer IEE
- B-04 Size and Dispatch Co-Optimisation of a Grid-Connected Agrivoltaic System
S. Mohseni¹, A. Brent¹
¹Victoria University of Wellington
- C-01 Bovinoé: an Agrivoltaic Tool to Sustain and Guarantee the Performance of Cattle Farms
A. Dupuis
Enoe
- C-02 A Study on Strength Characteristics According to the Shape of Columns in Agricultural Photovoltaic Structures
K. Lee¹, M. Kim¹, G. Do¹, S. Kim¹, J. Lim¹, J. Chae¹
¹MDsolar Co., Limited
- C-03 Inclination and Position Measurement Rugged Sensor and Encoder Solutions for the Solar Industry
M. Haas
SICK AG
- C-04 Enovoltaics: Structural Integration of Photovoltaics in Vineyards Trellises
J. Padilla¹, C. Toledo¹, A. Urbina¹, J. Abad¹, B. Miras¹
Presented by B. Miras¹
¹Technical University of Cartagena

- C-05 Structural Design of Agrivoltaic System Reflecting Crop Cultivation and Safety Assessment According to Various Installation Conditions
S. Lee¹, J. Lee¹, Y. Jeong¹, B. Seo¹, D. Kim¹, Y. Seo¹
¹Seoul National University
- D-03 TSE Agrivoltaic Canopy: Energy and Agriculture Productions
X. Guillot¹, L. Bonin¹, P. Massarotti¹
¹TSE
- D-05 Agrivoltaics Site Effects on Forage and Grain Biomass and Nutritive Value
S. Portner¹, B. Heins²
¹University of Minnesota; ²West Central Research and Outreach Center, University of Minnesota
- D-07 Crop Plant Phenology in Dryland Agrivoltaic Systems
A. Salazar¹, C. Ortega¹, G. Barron-Gafford¹
¹University of Arizona, School of Geography, Development & Environment
- D-08 The Potential for Shade Acclimation Among Crops Grown in a Dryland Agrivoltaic Environment
N. Rouini¹, G. Barron-Gafford¹, A. Salazar¹, K. Lepley¹, C. Ortega¹
¹University of Arizona
- D-09 Cold-Hardiness of Grapevine and Soil Characteristics in the Vineyards Under the Agrivoltaic Solar Panels
H.K. Yun¹, S.Y. Ahn¹, Z.L. Myint¹, B.M. Kim¹, W. Oh², J.H. Jung¹
¹Yeungnam University; ²Jeju National University
- D-10 Collaboration Between Valorem and INRAE: What Is the Impact of the Shading of Photovoltaic Panels on Alfalfa Crops and Grazing Areas?
D. Combes¹, M. Gaulier²
Presented by M. Gaulier²
- D-11 Study the Shade Effect of an Agri-Photovoltaic on a Field of Large Crops or a Breeding Meadow
D. Combes¹, S. Mahieu²
Presented by S. Mahieu²
- D-12 Towards Rice-Based Agrivoltaics in France: Field and Phytotron Research in a Project Linking Industry and Academia
L. Lescroart¹, M. Dingkuhn¹, S. Roques¹, D. Fabre¹
¹CIRAD

- D-13 Study of the Influence of Fixed Solar Panels on the Pedoclimatic Conditions and Plant Development of Three Grazed Grasslands at Different Geographical Locations.
D. Combes¹, A. Stepec²
 Presented by A. Stepec²
¹INRAE - URP3F; ²INRAE
- D-14 Inghels Et Al. - Assessing the Impact of Photovoltaic Trackers on Crop Growth and Crop Yields on Barley, Wheat and Maize
C. Inghels¹, P. Noiroot-Cosson¹, A. Guiller², T. Kichey², V. Leroy¹
 Presented by C. Inghels¹
¹Groupe OKWind; ²Écologie et Dynamique des Systèmes Anthropisés (EDYSAN, UMR 7058 CNRS UPJV)
- D-16 Evaluation of Crops Suitable for Agrivoltaics in Germany - a Review
K. Wydra¹, S. Prichta¹
¹Erfurt University of Applied Sciences, SolarInput e.V.
- E-01 How Coopetition Concept Could Improve France Research Studies in Agri-Photovoltaic (APV) Systems?
D. Combes¹, S. Mahieu²
¹INRAE - URP3F; ²INRAE
- E-04 Monitoring System for Vertical-Oriented Agrivoltaic Installations
H. Sanchez¹, C. Meza¹, F. Lebeau²
 Presented by R. Bruhwylter²
¹Anhalt University of Applied Sciences; ²DEAL, BioDynE, Liège University.
- E-05 Analysis of Potential of Agrivoltaics in Thuringia
V. Vollmer¹, S. Schmidt¹, H. Aulich²
¹SolarInput e.V.; ²sc sustainable concepts GmbH
- E-06 The Contribution of Agri-PV to Reaching Climate Neutrality in Austria: an Analysis of the Impacts on Agricultural Output
C. Mikovits¹, T. Krexner¹, I. Kral¹, A. Bauer¹, T. Schauppenlehner¹, M. Schönhart¹, E. Schmid¹, J. Schmidt¹
¹University of Natural Resources and Life Sciences
- E-07 Agrivoltaic Systems: Potential Opportunities for South Africa
A. Brent¹, N. Chapman², I. de Kock²
¹Victoria University of Wellington; ²Stellenbosch University
- E-08 Assessment of Agrivoltaic Development in States Across India
D. Majumdar¹, S. Mazumdar²
¹University of Massachusetts Global; ²University of Central Florida

- F-01 Agrivoltaics a State of the Art Boost in Greenhouse Crop Yield and Germination Based on the Semitransparent Organic Photovoltaics
E. Athanasiadou
- F-02 *Organic Electronic Technologies*
Assessment of Transparent PV Materials for a Greenhouse-Integrated Photovoltaic System
Á. Fernández-Solas¹, F. Almonacid¹, E. F. Fernández¹
¹University of Jaén
- F-03 Conceptual Design of a Novel Bifacial CPV System With Rear Concentrator
M.d.l.Á. Ceballos Pérez¹, Á. Valera Albacete¹, P.J. Pérez Higuera¹, F. Almonacid Cruz¹, E. Fernández Fernández¹
¹University of Jaén
- F-05 TERRA, a Completely New Perovskite Solar Cell System Design Specialized for Agrivoltaics
M. Higashi
Presented by K. Oda²
Terra; ² Agritree Co.,Ltd
- G-01 An Assessment of Light Availability for Crops Under Dynamic Agriphotovoltaic Systems
N. Seyedpour Esmailzad¹, D. Güney², İ. Gürsel Dino², T. Özden¹
¹ODTU GUNAM; ² Middle East Technical University
- G-02 Tracker Shadow Simulator(TSS) for 2-Axis Tracker Agrivoltaic System
S. Oh
Yeungnam University
- G-04 Challenges in the Planning, Construction and Farming Practices in Agrivoltaic Systems With Vertically Mounted Panels
K. Wild
University of Applied Sciences Dresden
- G-06 Luminescent Solar Concentrators for Greenhouses
S. Yerci¹, E. Asadi¹
Presented by E. Asadi¹
¹ Middle East Technical University
- G-07 Influence of the Albedo on Agrivoltaics Energy Production
C. Lavaert¹, B. Willockx¹, A. Kladas¹, J. Cappelle¹
¹ KU Leuven
- G-08 Enhancing Resilience of Agriculture in Semi-Arid Zones - Effects of Agrivoltaics on the Microclimate in Horticulture
D. Jung¹, F. Spera¹, F. Schoenberger¹
¹ Fraunhofer Chile Research

- G-09 Ground-Mounted Solar and Soil Ecosystem Services
M. Ricketts¹, L. Walston¹, A. Dolezal², A. Margenot², D. Mulla³, K. Covey⁴, H. Hartmann¹, H. Hartmann¹
¹Argonne National Lab; ²University of Illinois at Urbana Champaign; ³University of Minnesota; ⁴Skidmore College
- H-03 Performance Analysis of Ground Mounted and 2-Axis Tracker Bifacial Agrophotovoltaic Systems for 1-year
J. Jeong
Korea Electronics Technology Institute
- H-04 Vertical Agrivoltaic System on Arable Crops in Central France: Feedback of the First Year of Operation
E. Drahi
TotalEnergies
- H-06 Schoolyard Agrivoltaics as a Model for Experiential Learning and Citizen Science
C. Ortega¹, C. Pierson¹, A. Salazar¹, N. Ortega¹, P. Muller¹, K. Lepley¹, G. Barron-Gafford¹, N. Rouini¹
¹University of Arizona
- H-07 The Effects of Ground Cover on Solar Panel Temperature
H. Paterson
National Renewable Energy Laboratory
- H-08 Analyzing the Impact of Photovoltaic Collectors With Spectral Splitting on Crop Yield in an Agricultural Field
S. Esh
ARO - Volcani Institute
- H-12 Simulation of Light Distribution in a Multi-Level Photovoltaic Greenhouse With Supplemental LED Lighting
V. Haslavsky¹, H. Vitoshkin²
¹Azrieli Academic College of Engineering; ²Institute of Agricultural Engineering, Agricultural Research Organization
- H-13 Greenhouse Integrated Semitransparent Photovoltaic (GISPV): Energy Performance and Crop Activity Investigation
A. Moreno Bellostes¹, D. Chemisana Villegas¹
¹University of Lleida
- H-14 Modelling the Effect of Crops Albedo for Energy Conversion on Bifacial Agrivoltaic Systems
E. Potenza¹, S. Amaducci¹, P.E. Campana², M. Di Blasi³
¹Università Cattolica del Sacro Cuore; ²Mälardalen University; ³Enel Green Power
- H-15 Optical and Electrical Performance of an Agrivoltaic Field With Spectral Splitting
H. Vitoshkin
ARO, Volcani Center

H-16 Case Study: Impact Evaluation of Agrivoltaic Structure Sizing on Water Availability for Wheat
A. Guellim¹, C. Godard², B. Thuel², S. Héraud¹

¹Agrisoleo; ²Acte Agri Plus

H-17 Optimizing Dual-Axis Solar Panel Operation in an Agrivoltaic System Under Uncertainty
A. Stuhlmacher¹, J.L. Mathieu¹, P. Seiler¹

¹University of Michigan

H-09 Evaluating Leafy Green Production in a Colorado Rooftop Agrivoltaic System
A. Villa-Ignacio¹, J. Bousselot¹

¹Colorado State University

H-10 3D View Factor Power Output Modelling of Bifacial Fixed, Single, and Dual-Axis Agrivoltaic Systems
S. Zainali¹, S.M. Lu¹, E. Potenza², B. Stridh¹, A. Avelin¹, P.E. Campana¹

¹Mälardalen University; ²Università Cattolica del Sacro Cuore

15:00 - 16:30

**PV Panel & System Structure Technologies
Chair: Soo-Young Oh, Yeungnam University;
Evgenia Athanasiadou, Organic Electronic
Technologies**

15:00 Electrical Performance of Silicon Bifacial Semitransparent Photovoltaics in a Crop Responsive Tracking System Installed Inside a Polyunnel Greenhouse
E. Magadley¹, S. Masalha¹, R. Kabha¹, A. HajYehia¹, A. Abasi¹, I. Yehia¹

¹Triangle Research and Development Center

15:15 A Study of Power Generation and Crops Harvesting Efficiency of Vertical Agrivoltaics System
J.H. Jung

Yeungnam University

15:30 Key Advantages of Agrivoltaic Systems in Germany - a Comparison of the Electricity Yield of Different Systems
J. Böhm

Thünen Institute of Farm Economics

15:45 Photovoltaic Energy Production in Greenhouses With Spectral Splitting Solar Trackers
P. Broccard¹, J. Roch², D. Tran³, C. Camps³, J. Löffler¹

¹HES-SO University of Applied Sciences and Arts Western Switzerland; ²Voltiris SA; ³Agroscope

- 16:00 Balancing Crop Growth and Energy Harvesting for Improved Land Use Efficiency Through Spectral Beam Splitting in Agrivoltaic Farms
E. Ravishankar¹, S. Esh², O. Rozenstein², H. Vitoshkin², A. Kribus³, G. Mittelman³, E. Ziffer², S. Jakhar⁴, R. Hernandez¹
¹North Carolina State University; ²ARO - Volcani Institute; ³Tel Aviv University; ⁴Vellore Institute of Technology
- 16:15 Validation of Vertical Bifacial Agrivoltaic and Other Systems Modelling: Effect of Dynamic Albedo on Irradiance and Power Output Estimations
S. Ma Lu¹, S. Zainali¹, E. Sundström¹, A. Nygren¹, B. Stridh¹, A. Avelin¹, P.E. Campana¹
¹Mälardalen University
- 16:30 Session Recording: PV Panel & System Structure Technologies
- 16:30 - 17:30 **Multifunctional Agrivoltaic Systems**
Chair: Richard Randle-Boggis, University of Sheffield; and Constantin Klyk, Zimmermann PV Stahlbau
- 16:30 Varieties of Rangevoltaic: Differentiating Between Solargrazing in PV-GM and Agri-PV Projects With Chicken, Sheep, and Cattle. Results of a Techno-Economic Analysis
S. Schindele¹, K. Gruber¹, E. Bousi¹, M. Tegtmeier¹, M. Dennenmoser¹, E. Mucchiutti², B. Parmentier², M. Wanckel¹, C. Reiners¹, A. Schaal¹
¹BayWa r.e. Solar Projects GmbH; ²BayWa r.e. France SAS
- 16:45 A New Assessment of Solar Trackers Effects on Open-Air Poultry Welfare
C. Inghels¹, O. SIPAN¹, B. Pineau¹, T. Riou¹
Presented by P. Noirot-Cosson¹
¹Groupe OKWind
- 17:00 Toward Assessing the Impact of Photovoltaic Trackers on Biodiversity in Meadows and Crops
C. Inghels¹, R. Marrec², P. Noirot-Cosson¹, C. Inghels¹, G. Decocq²
Presented by V. Leroy¹
¹Groupe OKWind; ²Université de Picardie Jules Verne
- 17:15 Agrivoltaic System: Current and Future Water Energy, Food, and Land (WEFL) Needs in Benin, West Africa
S. Favi¹, R. ADAMOU¹, T. Godjo², M. Trommsdorff³, N. Chandra Giri⁴
¹West African Science Service Center on Climate Change and Adapted Land Use; ²National University of Sciences, Technologies, Engineering and Mathematics; ³Group Agrivoltaics Fraunhofer Institute for Solar Energy Systems ISE; ⁴Centre for Renewable Energy and Environment, Centurion University of Technology and Management
- 17:30 Session Recording: Multifunctional Agrivoltaic Systems

17:30 - 18:30 **Dinner Break**

18:30 - 20:00 **System Assessment and Performance Indicator**

Chair: Makoto Tajima, Institute for Sustainable Energy Policies; and Greg Barron-Gafford, The University of Arizona

18:30 Potential of Vertical Bifacial Agrivoltaic Systems in Europe

K.A.K. Niazi¹, M. Victoria¹

¹Aarhus University

18:45 Assessing Spatial Irradiance Distributions for Common Agrivoltaic Designs Across the United States

A. Kinzer¹, S. Ovaitt¹, J. Macknick¹

¹National Renewable Energy Laboratory

19:00 Solar Greenhouse Potential Estimation in Southern Spain Based on DLI and CAMS Data

N. Hanrieder¹, A. Kujawa¹, A. Bendejacq Seychelles², M. Blanco¹, J.A. Carballo³, S. Wilbert¹

¹German Aerospace Center DLR - Institute for Solar Research; ²L'Institut Agro Dijon; ³Centro de Investigaciones Energéticas, Medioambientales y Tecnológicas (CIEMAT)

19:15 Land Equivalent Ratio as a Key Assessment Indicator for Utility Scale Cropvoltaics

E. Bousi¹, S. Schindele¹, M. Tegtmeier¹, F. Binder¹, F. Neu¹, M. Dennemoser¹

¹BayWa r.e. Solar Projects

19:30 Design and Implementation of a PV Greenhouse

Ö.E. Özdemir¹, M. Berwind²

¹Fraunhofer ISE; ²Fraunhofer-Gesellschaft zur Förderung der angewandten Forschung e. V.

19:45 Agrivoltaic Tracking Systems Utilizing a Novel Deep Learning Metamodel and Parameter Selection With Optimization Algorithms

M. Berwind

Presented by K. Amelung

Fraunhofer ISE

20:00 Session Recording: System Assessment and Performance Indicator

20:00 - 20:30 **Closing Session**

20:00 Session Recording: Closing Session

20:00 TEST

TEST

20:00 AgriVoltaics IFE23 Announcement

B. Feuerbach, Conexio-PSE

20:05

AgriVoltaics2024 Announcement

Greg Barron-Gafford, University of Arizona and Jordan
Macknick, National Renewable Energy Laboratory