



**EU PVSEC**

**23 — 27**  
**September**

**ACV —**  
**Austria Center Vienna**

**Vienna —**  
**Austria**

[www.eupvsec.org](http://www.eupvsec.org)

# **EU PVSEC**

## **2024**

41st European  
Photovoltaic Solar Energy  
Conference and Exhibition



**Post Event  
Report —**

# INTRODUCTION

EU PVSEC is the leading global forum for PV research and development.

- Largest conference on PV solar energy with over 40 years of history.
- Annual meeting for experts in research, development, and industry.
- Features 1,100+ scientific presentations, workshops, and industry forums.
- Key platform for exchange between PV science and industry.

The EU PVSEC Conference programme is coordinated by the European Commission Joint Research Centre.

# KEY FIGURES





**EU PVSEC**

**23 — 27**  
September

**ACV** —  
Austria Center Vienna

**Vienna** —  
Austria

**EU**  
41st European  
Photovoltaic Solar Energy  
Conference and Exhibition  
**PVSEC**  
**2024**

# KEY FIGURES

OVER **1800**  
PARTICIPANTS

(conference and  
exhibition)

FROM  
**60**  
COUNTRIES

**5**  
DAYS OF  
CONFERENCE

**3**  
DAYS OF  
EXHIBITION

MORE THAN  
**1100**  
PRESENTATIONS

**290**  
SCIENTIFIC  
COMMITTEE  
MEMBERS

**71**  
EXHIBITORS

**15**  
SPONSORS

BECQUEREL  
PRIZE  
WINNER:  
DANIEL LINCOT

**6**  
STUDENT  
AWARD  
WINNERS

**15**  
POSTER  
AWARD  
WINNERS

OVER **9.500**  
SESSION VIEWS IN  
THE ONLINE  
PLATFORM  
WITHIN ONE  
WEEK

OVER **60.000**  
IMPRESSIONS OF  
EU PVSEC POSTS  
IN ONE MONTH

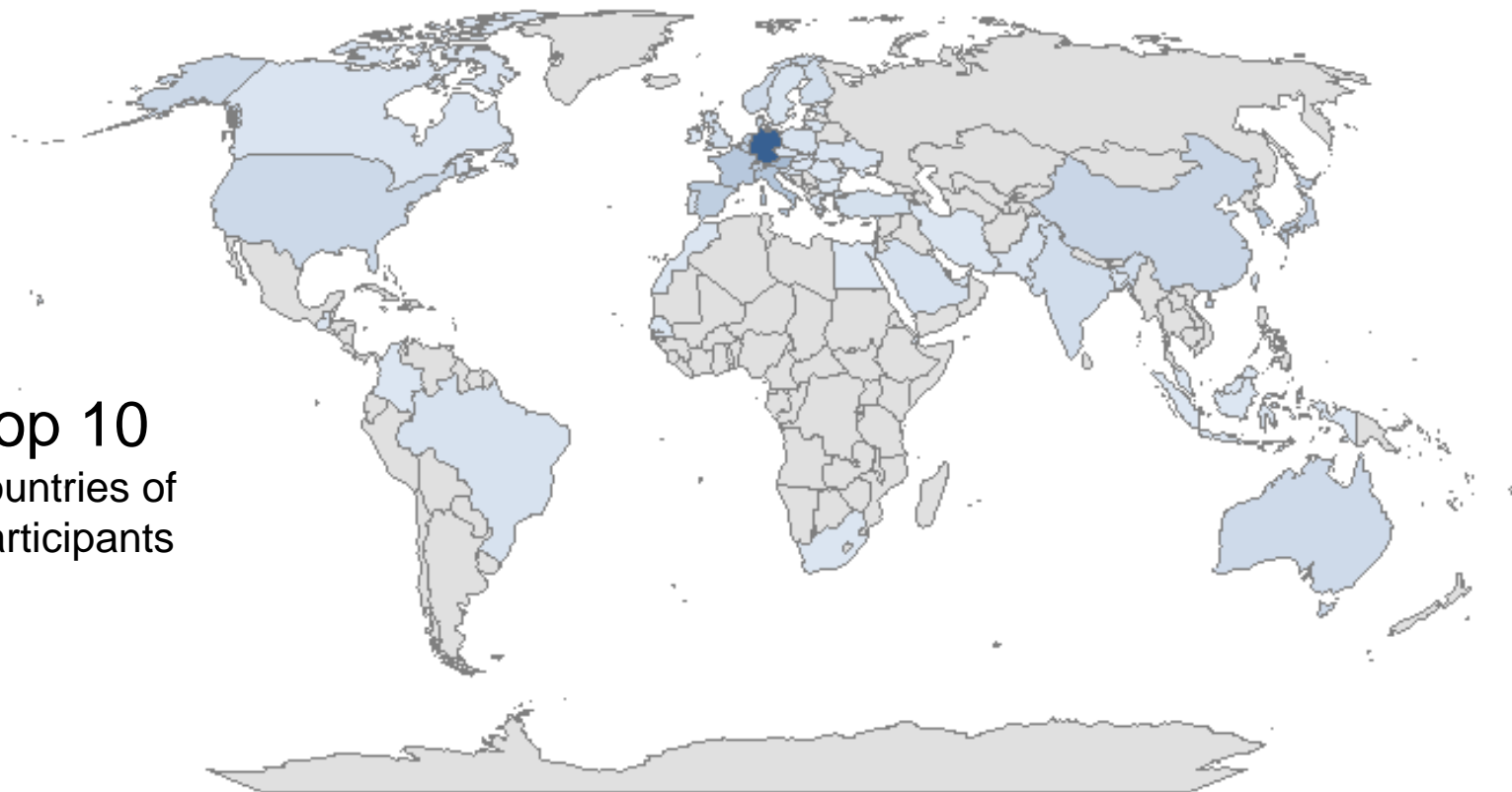


# KEY FIGURES Conference

# KEY FIGURES

No	Country	Participants
1	Germany	456
2	Austria	144
3	Italy	109
4	France	104
5	South Korea	99
6	The Netherlands	85
7	Switzerland	83
8	Spain	76
9	Belgium	66
10	Japan	64

Top 10  
countries of  
participants



# KEY FIGURES

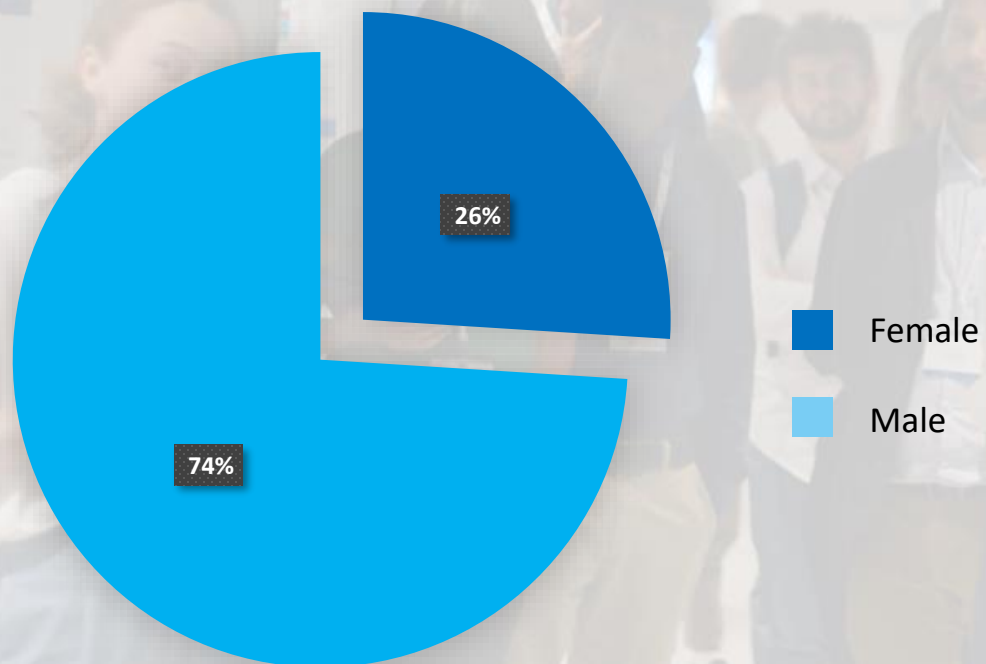
#businesswithtouch | 2nd Cycle FlexCo | 3E | 3S Swiss Solar Solutions | 3SUN | Aalto University | Aarhus University | ABO Wind | ACMM Group | Acondicionamiento Tarrasense (Leitat) | Advanced Silicon Group | AEA - Austrian Energy Agency | AESOLAR | Afore New Energy Technology (Shanghai) Co., Ltd. | AIKO Solar | AIST | AIT | Amarenco | AMIRES, The Business Innovation Management Institute | ANU | Apollo Power | Applied Research Institute for Prospective Technologies | Applied Solar Expertise - ASE | arconsol | Arizona State University | ASCR | ATAMOSTEC | Atlas Copco Italia | Atonometrics | Atotech | Augsburg University | Austrian Technologyplatform Photovoltaics | Autarq | Avalon ST | Avancis | Axiom India | b.network | Band Gap | BayWa r.e. | Becquerel Institute | Belanz | Belectric | Berlin University of Applied Sciences | Betsa | Better Energy | Better Natural | bifa Umweltinstitut | Bioenergie Mureck | Biosphere Solar | BITS Pilani | Blue Investment Advisors | BlueVolt | BMI Deutschland | Borealis Polymers | Bosch Rexroth | Bottero. | Bravosolar | BUAS | Buhck ReEnergy | Bundesverband Photovoltaic Austria | Caelux Corporation | Casa dos Ventos | Catalan Institute for Energy Research | Catania University | CE Cell Engineering | CEA / INES | CEI - COMITATO ELETTROTECNICO ITALIANO | CENER | Cennerg (Pty) | Center for Physical Sciences and Technology | Center for Study of Science, Technology and Policy | Centre d'Etudes et de Recherche de Djibouti | centrotherm international | CERTH | CF Energy | Chalmers University of Technology | Chinese Academy of Sciences | Chint Solar Europe | Chonnam National University | Chungbuk National University | Chungbuk Technopark | CIEMAT | CINaM | CINEA | City of Vienna | Climate Copy | CNRS/GeePs | Coatema Coating Machinery | Colorado School of Mines | colourFIELD tell-a-vision | Complutense University of Madrid | Consorzio Futuro in Ricerca | COSMOTAICS | Coveme | Cretschmar | CRM | CSEM | CSIR - National Institute for Interdisciplinary Science & Technology | CSIRO Energy | CSTB | Cubico Sustainable Investments | Czech Technical University in Prague | Dai Nippon Printing | Dalarna University | Daniel Lipschits Architecture and Utility Infrastructure | DAS SOLAR | Delfos Energy | Desert Technologies | DESTEC - University of Pisa | Deutsche Gesellschaft für Sonnenenergie Landesverband Berlin Brandenburg | DEWA | DGIST | Die Ökoenergie | Dipl.-Ing. Johannes Oberlechner | DKEM | DNV | Dokuz Eylul University | Dong-Eui University | Dornier Suntrace | Dow Silicones Belgium | DOWA HOLDINGS (SHANGHAI) | DTU - Technical University of Denmark | Duke Kunshan University | DWR eco | Echoenergia | ECM Greentech | E-Control | Ecoprogetti | Eddes Sustainability Solutions | Eder PTFE Solutions Sp | EDF | EDP Sciences | Ege University | ehoch2 energy engineering | Eindhoven University of Technology | EKO Instruments Europe | Electric Life | Elia SA | EMD International | EMPA | ENEA | Enerbim | Energy Administration, Ministry of Economic Affairs, R.O.C. | Energy Photonics Research Center | Energy Watch | Energy3000 solar | Enerland Group | Enertis Applus+ | ENGIE | Engreen | ENI PLENITUDE | Enlog Europe | Enmova | ENOE SOLAIRE | Enpal | EnPV | ENTEGRO ENERJÍ SISTEMLERİ SANAYİ VE TİCARET LİMİTED ŞİRKETİ | EON | EPFL | EPRI | Equinor | Equipment Supplier | ESMC | Estudio Radio / Transicion E | ETA - Florence Renewable Energies | Eternal Sun | ETRI | Eurac Research | Europe Altek | European Commission DG | European Commission JRC | European Space Agency | Evergy Engineering | ewz | exateq | Faculty of Sciences Semlalia, Cadi Ayyad University | Far East University | Federico Santa Maria Technical University | FH Aachen | FH Technikum Wien | FH-OOE | First Solar | FLUKE | Fluxim | Forschungszentrum Jülich | Fortum | Fraunhofer IMWS | Fraunhofer CSP | Fraunhofer FEP | Fraunhofer IEE | Fraunhofer ISE | Fraunhofer IST | Free Journalist | Friedrich-Alexander University Erlangen-Nuremberg | Fronius International | Fukushima Renewable Energy Institute, National Institute of Advanced Industrial Science and Technology | Fundació Institut de Recerca en Energia de Catalunya | FuturaSun | g2voptics | GAF Energy | Garmin | Geely holding group | Geert Palmers | Gerhard Mütter | German Aerospace Center | Gewerkschaftsmedium | GfE Fremat | Gifu University | GIZ | Glaston Switzerland | Goneo New Energy Europe | Graz University of Technology | Green Energy Park | Green Horse Advisory | Grenzebach ENVELON | Gretecsol | Guatemala Solar Group | GWNET | Habemax | Haikai Media | Hallosonne | halm elektronik | Hamad Bin Khalifa University | Hanwha Q CELLS | Hasselt University | Heinrich Kopp | Helmholtz Zentrum Berlin | Hengdian Group DMEGC Magnetics | Heraeus | HESPUL | Hitachi | HKA | Hochschule Anhalt | Hochschule Ansbach | Hojinplatech | HOLOSOLIS | Holyvolt | Horizon Flevoland | Hoseo University | HS SolarEnergy | HTSW | HTW Berlin | HUAWEI TECHNOLOGIES Duesseldorf GmbH | HUIZHOU LYCN ELECTRONICS | Hunova Built | Hyundai Glovis | ib vogt | IBC SOLAR | Iberdrola Renovables Italia Spa | Ibn Zohr University | IBS | Icrea | IEA PVPS | I-EM S.r.l. | IFE Institute for Energy Technology | IIT Bombay | IIT Delhi | IIT Kharagpur | IKAROS SOLAR | imec vzw | Indian Institute of Science | Ingenieurbüro Muntwyler | Inha University | InnoEnergy | INSA Lyon | Institute of Nanoscience and Technology | INTERENERGO | International Finance Corporation (World bank Group) | International Iberian Nanotechnology Laboratory | International Renewable Energy Equipment Recycling Association | IP FAB | IPU | IPU P/S | IPVF | IREC | ISC Konstanz | Ischia Consulting | ISFH Institut für Solarenergieforschung | ITER | ITRI | JAIST | JH Energy | Jiangsu Xianghuan Technology | JinkoSolar | JLN Solar | JNTP | Joanneum Research | Johannes Kepler University | JUWI | KAIST | KalyonPV | KANC | Kaneka | Karlsruhe Institute of Technology | KCL Korea Conformity Laboratories | KET1 | KFUPM | Khalifa University | Khnp | KICET | Kiel Institute | KIER | KIMS | King Abdullah City for Atomic and Renewable Energy | KIST | KITECH | Kiwa PI Berlin | Klima- und Energiefonds | Koc University | Kontron AIS | Korea Aerospace University | Korea Electrical Safety Corporation | Korea Electrotechnology Research Institute | Korea Institute of Energy Technology (KENTECH) | Korea Institute of Industrial Technology | Korea National University of Transportation | Korea Photonics Technology Institute | Korea Water Resources | KRICT | KTL Korea Testing Laboratory | KU Leuven | Kyocera | LayTec | Leader Technology |

Lenzing Plastics | Lider Polska Sp. z o. o. | Lightyear | Linköping University | Loughborough University | LPKF SolarQuipment | LuciSun | Lunovon | LUT University | LuxChemtech | Macquarie University | Mapna Group | Mayer am Pfarrplatz | MJB Solutions | media group berlin | Meiji University | Messe und Congress Center Basel | meteocontrol | Meteotest | Meyer Burger | Microquanta Semiconductor | Middle East Technical University | Mines Paris, PSL University, Centre for Observation, Impacts, Energy (O.I.E.) | Ministry for Climate Action, Environment, Energy, Mobility, Innovation and Technology (BMK) | Ministry of Oil-IRAQ/SCOP | Mitsubishi Electric Europe | Mitsui Chemicals Europe | Mizuho Research & Technologies | MK ENERGY | Montanuniversität Leoben | Mott MacDonald | MSP | Müller-Guttenbrunn | my-PV | Nagase | Nagoya University | Nankai University | Nanotechnology Lab LTFN, AUTH / COPE-Nano | National Central University | National Cheng Kung University | National Institute of Solar Energy | National Solar Energy Federation of India | National Technical University of Athens | National University of Kongju | Naval Postgraduate School | NEMSER DIŞ TICARET LTD.ŞTİ. | NEO Messtechnik | NET Nowak Energy & Technology | Netherlands Enterprise Agency (RVO) | Next2Sun | NexWafe | Niederhuber & Partner Rechtsanwälte GmbH | Niigata University | Nines Photovoltaics | Ningbo Hangping Technology Co., | Ningbo Solar Electric Power | noco | Norwegian University of Science and Technology | Novocontrol Technologies | NREL National Renewable Energy Laboratory | NSEFI | Nuena | NUS Singapore | Nyfors | Ocelus Solar | Odenwald University of Applied Sciences | OffGrid Europe | ONERA | Onyx Solar | Optris | Orcan Energy | Organic Electronics Technologies | Origami Solar | OSRAM | Osaka University | Oulun yliopisto | Oxford Photovoltaics | P-Scientific | PCL Construction | Perovskia Solar | Pfi Zurich | PHOSTER & Phormos | Photovoltaic Hydrogen International | PI Photovoltaik-Institut Berlin | PIC Advanced | Politecnico di Milano | Politecnico di Torino | PolySolar Sarl | Power Research Electronics | PowerGreen | PowerPoint | Powitt Solar | Pratt School of Engineering | Prettl Electronics | Prime Light Lux Sdn Bhd | Proxima Solar Power | PSE Projects | PVComplete | PVEX Solar Energy | PVflex Solar | Pyron Solar | Qingdao University of Technology | RAE Technologies | Rapid Group | REC Solar EMEA | REM Tec | Renon India | Rensselaer Polytechnic Institute | Repsol | RGS Group | Rheinische Friedrich-Wilhelms-Universität Bonn | RI-SE | Rioglass Solar | Risen Energy | Rivval | RK Solar | RODA TECH SOLUTIONS | Rotomonte GmbH | Royal Melbourne Institute of Technology | RWTH Aachen | Saft | Salvinelli S.r.l. | Samsungsdi | Sanko Solar | Savion | SDLE Research Center, University of Zaragoza | SeaRenergy Offshore Holding | SEFAR AG | SELHA | Sendyne | Senftenbacher | Sener | Seosun Tech | Seoul National University | SERAPHIM | Seবাদis | Shanghai JA Solar Technology | Shanghai Preform Solar Electric | Sharif University of Technology | Sheffield Hallam University | Siemens | SIKA | Singapore Institute of Technology | Singapore University of Technology and Design | SINTEF | SKILLD | SMAPP Technologies | SMA Solar Technology | Smarter E | SOFARSOLAR Europe | Solandeo | Solar Americas Capital | Solar Design and Integration | Solar Dynamics | Solar FlexRack | Solar Panel Recycling | Solar Trade | Solar3D | SolarBank Corporation | Solarday | SOLARFOCUS | Solargis | Solarify | Solartec | SOLBIAN | SolEco | Solera Sustainable Energies Company | SOLIBRO | Sollex | Solnet Green Energy | Sonnergy | Source Electrics | South China University of Technology | Space Office | SPIC - State Power Investment Corporation | Sprinz | Stanford University | Sterling and Wilson | Stirling Consult | STOREME | Sumida | SUNSET Energietechnik | Sunshine PV | Sunways | Surbana Jurong | SUSE | Sustainable Strategies | SWATHI Institute of Solar Energy | Swiss Federal Office of Energy | Swissolar | Sydney Nano Institute | Synergie Cad | TAQ | Tecminho | Technische Hochschule Ulm | Technical University of Denmark | Technische Universität Berlin | Technische Universität Ilmenau | Technical University of Munich | TechnoSemichem | TechX Solar | TEL Solar | TELTOM | TenneT TSO | TERNA ENERGY | The City University of New York | The Penn State College of Engineering | The University of Adelaide | The University of Tokyo | TNO Energy Transition | Tokuyama Corporation | Tomsk Polytechnic University | Tohoku University | Tokyo Metropolitan University | Toposens | TORNOS | TOTAL Energies | TPedge | TPT Tianjin University of Technology | TÜV NORD Group | TÜV Rheinland Energy GmbH | TZMI | Ubiquitous Energy | UBS | UL Solutions | Ulm University | Umicore | Universidad Autónoma de Madrid | Universidad de Alicante | Universidad de Antioquia | Universidad de Burgos | Universidad de Chile | Universidad de Jaen | Universidad de La Laguna | Universidad Politécnica de Madrid | Università degli Studi di Catania | Università degli Studi di Firenze | Università degli Studi di Milano | Università degli Studi di Padova | Università degli Studi di Roma La Sapienza | University College Cork | University of Alicante | University of California, Davis | University of California, Los Angeles | University of Calgary | University of Canberra | University of Chile | University of East London | University of Engineering and Technology | University of Freiburg | University of Jaén | University of Ljubljana | University of New South Wales | University of Queensland | University of Stuttgart | University of Twente | University of Vienna | UNSW Sydney | Varese International Company Limited | Viavi | Vienna University of Technology | VNU University of Engineering and Technology | Vodafone | Voltac Solar | VTT Technical Research Centre of Finland | Wageningen University & Research | WAVELABS Solar Metrology Systems | Weidmüller | WELTEC BIOPOWER | WESTPOINT | Wilfried-Elmer-Consulting-Group | Win Inertia | Wincon Technologies India | Wind Guard Certification GmbH | WIPO | WKN Windkraft Nord | Wood Mackenzie | World Economic Forum | World Energy Council | WRH Walter Reist Holding | Wuppertal Institute | Würth Elektronik | Wuxi Suntech Power | Xinyi Glass | X-Park | Xylem | Yalong River Hydropower Development Company | Younicos | YUWA | Zellum Technologies | Zesco | Zeversolar | Zimmetry Environmental | ZSW Stuttgart | ZTE

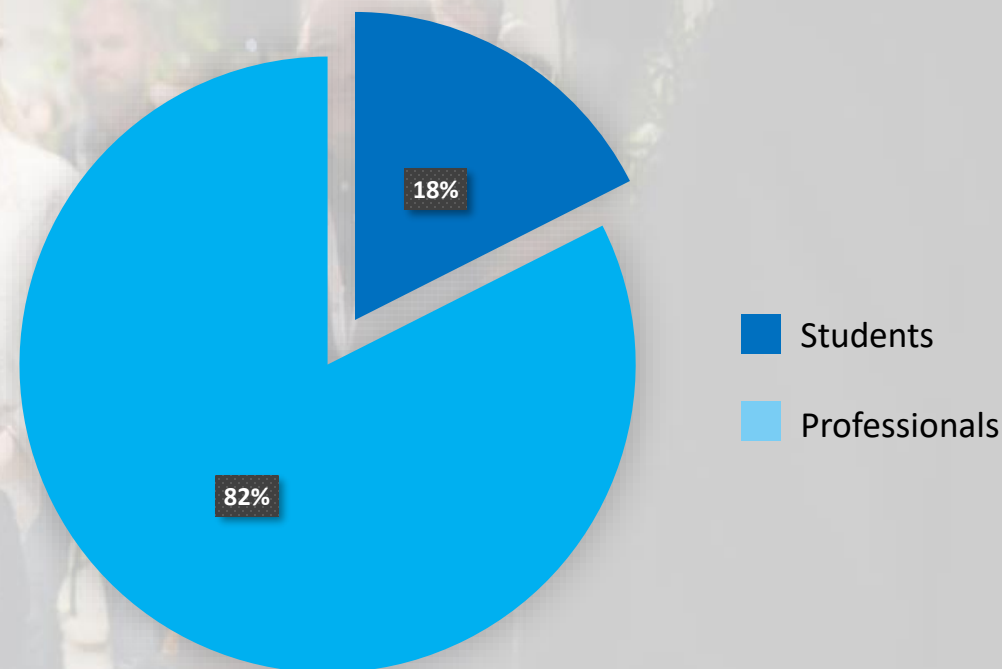


# KEY FIGURES

## Gender Distribution



## Student Share



# KEY FIGURES

**5**  
MAIN  
CONFERENCE  
TOPICS

Topic 1      Silicon Materials and Cells

Topic 2      Thin Films and New Concepts

Topic 3      Photovoltaic Modules and BOS components

Topic 4      PV Systems Engineering, Integrated / Applied PV

Topic 5      PV in the Energy Transition

# KEY FIGURES

**4**  
**PLENARY**  
**SESSIONS**

**56**  
**ORAL**  
**SESSIONS**

**16**  
**POSTER**  
**SESSIONS**

**4**  
**PANEL**  
**DISCUSSIONS**

	Sun, 22 Sept.	Monday, 23 Sept.	Tuesday, 24 Sept.	Wednesday, 25 Sept.	Thursday, 26 Sept.	Friday, 27 Sept.
08:30						
09:30						
Break						
10:30						
12:00						
Lunch						
13:30						
15:00						
Break						
15:15						
16:45						
Break						
17:00						
18:30						

Topics / Subtopics

## 1 Silicon Materials and Cells

- T1.1 Silicon Material Science and Technology
- T1.2 Single Junction Silicon Cells
- T1.3 Silicon Bottom Cells for Tandem Photovoltaics
- T1.4 Characterisation & Modelling of Silicon Cells
- T1.5 Manufacturing of Silicon Cells

## 2 Thin Films and New Concepts

- T2.1 Perovskite-based Tandems
- T2.2 Perovskites
- T2.3 Compound and Organic Semiconductors
- T2.4 New Materials, Devices and Conversion Concepts
- T2.5 New Modelling and Characterization Techniques

## 3 Photovoltaic Modules and BoS Components

- T3.1 PV Module Design and Manufacturing
- T3.2 PV Module Durability and Reliability
- T3.3 PV Module Performance – Modelling, Testing, Standards
- T3.4 Power Converters and other Balance of System Components

## 4 PV Systems Engineering, Integrated/Applied PV

- T4.1 Solar Resource and Forecasting
- T4.2 Design, Engineering, and Installation of PV Systems
- T4.3 Operation, Performance, and Maintenance of PV Systems
- T4.4 PV and Buildings
- T4.5 Dual Use and other Innovative PV Applications
- T4.6 Digital PV, Power Electronics and Electrical Grid Interface

## 5 PV in the Energy Transition

- T5.1 Energy System Integration; Resilience and Security of Supply; Solar Fuels, Storage
- T5.2 Sustainability of PV
- T5.3 Scenarios for Renewables, Policy, Global Challenges
- T5.4 Costs, Economics, Finance and Markets
- T5.5 Societal Challenges; Citizens' Participation, Awareness

## Session Code



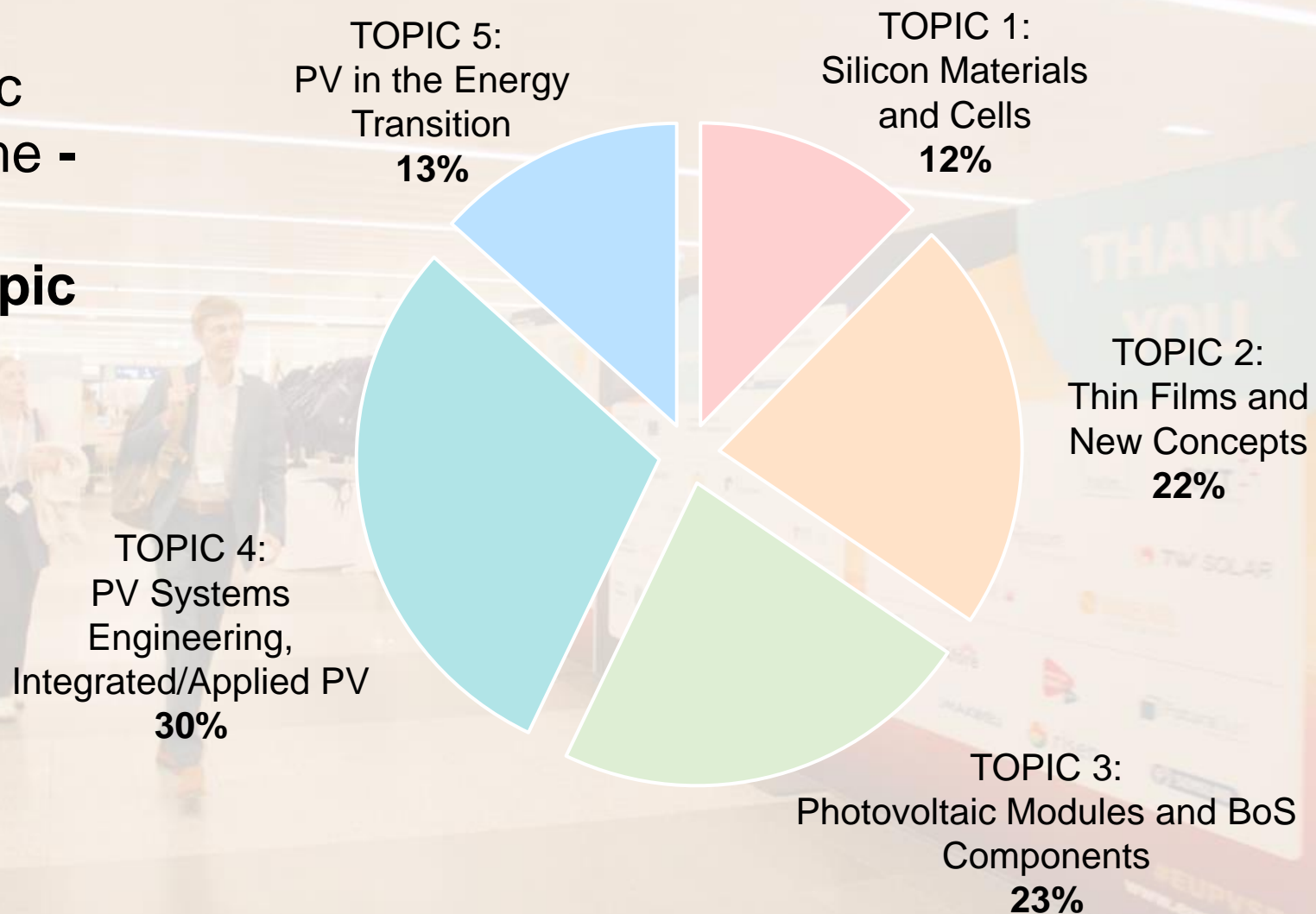
## Auditoria

- Audit. F
- Audit. N
- Audit. L
- Audit. 1.86
- Poster Area



# KEY FIGURES

## EU PVSEC Scientific Conference Programme - Distribution of Presentations per Topic



# HIGHLIGHTS AND TAKE-AWAYS

***PV transits fast to a multi-terawatt era producing most of the cheapest electricity available.***

***Each day, more PV capacity is installed worldwide than a typical nuclear power plant.***

**Silicon Solar Cells:** Is by far the largest segment of the market in the short and mid-term. Research is improving silicon solar cell efficiency, with a focus on CRM reduction and cost-cutting through process simplification and costs reduction. Silicon bottom cells are key to perovskite-silicon tandem cells (with important studies in recombination junction assessments) and there's growing interest in space applications for low Earth orbit satellites.

**Chalcogenides and Perovskites:** Efficiency gains in chalcogenides (Kesterite, CIGS) and perovskite-based tandems show strong progress. Key achievements include perovskite-CIGS tandems reaching 19.9% efficiency and all-perovskite flexible tandems at 19.7%. Perovskite materials attract important research interest (e.g fundamental physics, characterization and modelling). Outdoor testing is essential to identify failure mechanisms.

# HIGHLIGHTS AND TAKE-AWAYS

## **Perovskite-Silicon Tandem**

**Cells:** The development of perovskite-silicon tandem cells is advancing, with first shipments underway. These tandems, along with triple-junction devices, are pushing efficiency, and stability and reliability improvements, making them promising for commercialization.

## **Module Design and**

**Manufacturing :** Innovations in module manufacturing, including new encapsulants and interconnection techniques, are enhancing performance and recyclability. New materials like perovskites present challenges for characterisation and standards.

## **PV Systems and Applications:**

Is the largest topic at the conference, underlining that PV is absolutely mainstream in the electricity production. Non-intrusive O&M methods like daylight photoluminescence imaging and machine learning gaining traction. Agrivoltaics, floating PV, and BIPV are evolving, with a focus on performance and custom integration.



# HIGHLIGHTS AND TAKE-AWAYS

**Grid Integration and Storage:** Are becoming essential in the multi-Terawatt PV era. Discussions focused on new solutions for handling high PV penetration rates, particularly through smart grid management, hybrid plants, storage solutions, sector coupling, and innovative electricity market designs.

**Circular Economy and Social acceptance:** Sustainable manufacturing practices and new module designs focusing on easier end-of-life recycling. Circular PV economy: Ongoing research into recycling techniques and eco-friendly materials. Social acceptance of PV technologies are increasingly important as the sector grows.

# OPENING SESSION

## Becquerel Prize Ceremony

Winner 2024:  
Daniel Lincot



## Plenary Session “Manufacturing”

## Moderated Panel Discussion “Solar Everywhere: Addressing the Challenges and Potential of Global PV Expansion”

## Welcome Message, Opening Addresses & Keynote Speech

“Global PV technology:  
Innovation, collaboration  
and yes, politics!”



- Dr. Gabriele Eder, OFI, General Chair, EU PVSEC 2024
- Leonore Gewessler, Federal Minister for Climate Action, Environment, Energy, Mobility, Innovation and Technology, Austria, (BMK)
- Jürgen Czernohorszky, Executive City Councillor for Climate, Environment & Democracy, City of Vienna
- Dr. Christian Thiel, Head of the Energy Efficiency and Renewables Unit, Joint Research Centre, European Commission
- Prof. Dr. Rutger Schlatmann, Chairman European Technology and Innovation Platform for Photovoltaics (ETIP PV), Head of the Division Solar Energy, Director Institute PVcomB, Helmholtz-Zentrum Berlin für Materialien und Energie GmbH



- Leonore Gewessler, Federal Minister Austria, Climate Action, Environment, Energy, Mobility, Innovation and Technology (BMK)
- Prof. Dr. Andreas Bett, Director of Fraunhofer ISE
- Walburga Hemetsberger, CEO Solar Power Europe
- Prof. Nancy Haegel, Director of the National Center for Photovoltaics at NREL
- Alessandro Barin, CEO Futura Sun
- Moderation: Dr. Arnulf Jäger-Waldau, Senior Expert at the Efficiency and Renewables Unit, Joint Research Centre, European Commission

# PANEL DISCUSSIONS

## “Stable Perovskite Tandems: Hype or Hope?”

### Moderators:

- Veronica Bermudez Benito, QEERI, Qatar
- Jan Christoph Goldschmidt, University of Marburg, Germany

### Panelists:

- Carolin Ulbrich, HZB, Germany
- Chris Case, Oxford PV, United Kingdom
- Xinyu Zhang, Jinko, China
- Eva Unger, Humboldt University Berlin, Germany
- Peter Fath, RCT Solutions, Germany

## " Social Acceptance of Ubiquitous-PV: The Era of Integrated Photovoltaics“

### Moderators:

- Alexis Pascaris, NREL - National Renewable Energy Laboratory, USA
- Mirella de Falco, La Sapienza, Italy

### Panelists:

- Alessandra Scognamiglio, ENEA, Italy
- Thomas Reindl, SERIS, Singapore
- Pierluigi Bonomo, SUPSI, Switzerland
- Jordan Macknick, NREL, USA
- Eva Vandest, Amarenco, France

## " Renewables 24/7: The Challenges of Integrating Renewables into the Future Electricity System“

### Moderators:

- Hubert Fechner, Austrian PV Technology Platform, Austria
- Gerhard Mütter, Gerhard Mütter e.U, Austria

### Panelists:

- Walter Schaffer, Salzburg Netz, Austria
- Alfons Haber, e-control, Austria
- Gerd Heilscher, Technische Hochschule Ulm, Germany
- David Moser, Eurac Research, Italy
- Andreas Hensel, Fraunhofer ISE, Germany
- Tsvetelina Merdzhanova, Forschungszentrum Jülich, Germany





# KEY FIGURES Exhibition

# EXHIBITION

EXHIBITORS AND  
SPONSORS FROM  
**16** COUNTRIES



Austria, Belgium, Canada, China, Czech Republic, France, Germany, The Netherlands, Greece, Hungary, Italy, Malaysia, Slovenia, Switzerland, Türkiye, United States of America



**71** EXHIBITORS  
AND SPONSORS

**2** NATIONAL  
PAVILIONS



## Exhibitors from the following areas of the value chain



Associations



Consultancy



Research Centres and Universities



Industrial Equipment for Solar Manufacturing



Ingot, Wafer, Cells and Modules Production



PV Mounting Systems and PV Components



Energy Storage Solutions




Chemical and Material Solutions



Simulation and Testing Tools





# KEY FIGURES

## Parallel Events & Industry Summit

# PARALLEL EVENTS & INDUSTRY SUMMIT

**142**  
PARALLEL  
EVENT  
PRES.

**41**  
INDUSTRY  
SUMMIT  
PRES.

Sunday 22 Sept.		Monday 23 Sept.		Tuesday 24 Sept.			Wednesday 25 Sept.		Thursday 26 Sept.		Friday 27 Sept.	
08:30	PV Academy	↓ Audit F (main)	EU PVSEC 2024 Opening	↓ Audit. Room 1.61	↓ Exhibition Forum	↓ Audit. Room 1.61	↓ Exhibition Forum	↓ Audit. Room 1.61	Reliable Integration of PV in EU Grids	↓ Audit F (main)	08:30	
10:00		Towards Ecosystem Integrated PV Systems		ZSW - Perovskite Solar Cells: A Game Changer in PV Technology? 09:00 - 10:00	Solar Resource Handbook Edition 2024	ZSW - Reuse, repair.... Is there a second life for PV Modules? 09:00 - 10:00	10:00					
Break							Break					
10:30			Women in PV	Roundtable Discussion	Roundtable-BIPV Opportunities in the Indian Marketplace	Company Presentations	Co-shaping the European PV R&I priorities: A basis for the new Co-programmed Partnership	10:30				
12:15		Lunch	↓ Audit. Room 1.86	↓ Audit. Room 1.86	↓ Audit. Room 1.61	↓ Exhibition Forum	↓ Audit. Room 1.61	↓ Exhibition Forum	↓ Audit. Room 1.61		12:00	
13:30			Industry Summit Opening	Empowering PV Integration in the Built Environment: Advancing R&I Actions Towards 2030	How Industry Expansion, Evolving Prices and Local Policies are Driving the Global Market	Company Presentations	A New Era in PV Development in Desert Environments: Challenges and Solutions	From alpine peaks to city rooftops: innovative Austrian photovoltaic power projects	I-V Testing and Power Rating Methods for Metastable PV Devices and the Need for Standardised Measurement Protocols		Closing Session	Lunch
15:00												13:45
Break			↓ Audit. Room 1.61									Break
15:15			Ecodesign and Energy Label for PV Products: Present and Future	Industry Summit	Solar 24/7 – How Innovation can Support an Electrified Energy System based on Renewables	Floating Photovoltaic Power Plants	Company Presentations	Thin-Film Paving the Way for Next Generation Solar Technology and the Just Energy Transition	Roundtable discussion		Cross-Climate Reliability Assurance: PV Lab Testing Meets the Real World	15:15
16:45												16:45
Break										Break		
17:00		Unveiling the Future of Solar Energy with Perovskite PV	Industry Summit	Inverters – The Brain of the Solar System, Supporting the Energy System of the Future	The Landscape of Agrivoltaics: In Between People and Technology	Exhibition Booth Party	Manufacturing Innovative PV Technology in the EU - Chances and Challenges	Company Presentations	Perovskite Network Event: Current Experiences in Characterisation and Indoor/Outdoor Testing of Varied Perovskite Cells and Mini-modules	17:00		
18:30										18:30		
		Parallel Events / Session										
		Industry Summit										

Parallel Events / Session

Industry Summit

# PARALLEL EVENTS & INDUSTRY SUMMIT

MONDAY 23 SEPTEMBER 2024 | 13:00-15:00

**Opening Industry Summit - European PV Manufacturing in stormy times – will we see the tide turning any time soon?**



MONDAY 23 SEPTEMBER 2024 | 17:00-18:30

**Next era of European PV Manufacturing**



MONDAY 23 SEPTEMBER 2024 | 15:15 - 16:45

**Global Perspectives on Solar PV Manufacturing: Time-to-market, Costs and Technology Transfer in USA, India, and Europe**



TUESDAY 24 SEPTEMBER 2024 | 09:00-10:00

**Perovskite solar cells – from materials towards application**



WEDNESDAY 25 SEPTEMBER 2024 | 13:30-15:00

**From Alpine peaks to city rooftops: innovative Austrian photovoltaic power projects, The Austrian Climate and Energy Fund and the Vienna Business Agency present startups and new technology developments from their current funding programs**





## Some of the most recognized and experienced scientists in the field gave four top level lectures on:

**9:00 - 11:30**

### Calibration of Tandem Solar Cells and Modules

Tandem solar cells offer avenues to increase efficiency beyond the current state of the art for commercial photovoltaics. New absorbers and device structures including hybrids that combine different material classes such as III-V/Si or perovskite/Si are intensely researched. To guide the evolution of tandem solar cells towards commercialization, accurate measurements of performance are required. In this tutorial we will discuss how an accurate performance calibration for a tandem cell or module is done and present common measurement artifacts and methods to identify and avoid them.



Dr. Gerald Siefer  
Fraunhofer ISE



Dr. Nikos Kopidakis  
NREL

**13:00 - 15:30**

### Agri- and Floating PV Systems

As land scarcity and land use conflicts are acknowledged as important barriers for the development of PV in many countries, Agrivoltaics and Floating PV provide a huge opportunity to achieve national energy targets for PV. Moreover, these integrated approaches to PV also offer the opportunity to solve concerns regarding the landscape transformation through an appropriate design. The key proposition is "combining land uses for multiple purposes on the same space with innovative designs and technologies". Therefore, Agrivoltaics and Floating PV are more than just PV electricity generation technologies. For example, the partial shade of PV modules is beneficial for several crops and the modules themselves offer mechanical protection to the crops, and floating PV systems can be hybridised with existing hydropower stations. The lecture will provide an overview of the different technologies, the state-of-the-art in system designs and upcoming technology trends, but also address critical issues such as regulatory approvals, as well as social and environmental aspects.



Dr. Thomas Reindl  
SERIS



Dr. Alessandra Scognamiglio  
ENEA

**16:00 - 18:30**

### Recycling of PV Systems

Solar energy has been recognized as one of the best candidates to lead the energy transition. Besides its massive deployment, the photovoltaic industry has an important role to play by opening prospects to sustainable and circular models. In this context, end-of-life management is one of the topics that should be carefully considered. This lecture will introduce photovoltaic waste management, including recycling approaches and development. From a global overview, the session will cover policy, regulations, and technological development, as well as trends and challenges for the next decades.



Cara Libby  
EPRI



Dr. Claire Agraffail  
CEA

## Chaired by:

Chair



Dr. Frank Dimroth  
Fraunhofer ISE, Germany

Co-Chair



Dr. Stephanie Tomasulo  
NRL, USA

Co-Chair



Prof. Takashi Minemoto  
Ritsumeikan Univ., Japan





# NICE TO KNOW

# SUSTAINABILITY

At the EU PVSEC 2024, we continued our strong commitment to environmental and social sustainability. Our efforts focused on reducing the event's carbon footprint through various initiatives, ensuring a carbon-neutral event. Key sustainability actions included:

## **Carbon Footprint Reduction:**

- Promoted sustainable travel options for participants
- Reduced printed materials in favour of digital alternatives
- Used recyclable packaging and materials to minimise waste

## **Green Ticket Initiative:**

- Participants could contribute to carbon compensation projects through the Green Ticket
- Partnered with *myclimate* to offset remaining emissions

## **Sustainable Catering:**

- Sourced regional ingredients to reduce transportation emissions and support the local economy



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Nachrichten » 'You can't stop at the door of the lab' - EU PVSEC 2024

pv magazine | 27.09.2024 16:05 Uhr | 181 Leser | Artikel bewerten: ★★★★★ (1)

## 'You can't stop at the door of the lab' - EU PVSEC 2024

The 41st European Photovoltaic Solar Energy Conference (EU PVSEC) will draw to a close in Vienna this afternoon. Discussions at this year's event leave little doubt that solar installations will continue to see impressive growth over the coming years. All week there has been plenty of optimism around new policy and technical innovations driving more solar into both electricity grids and urban and rural environments. For Europe, however, the lack of any meaningful capacity for manufacturing these promising technologies locally, puts something of a dampener on things. Accepting the Becquerel Prize ...

Den vollständigen Artikel lesen ...  
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## Forum Nachhaltig Wirtschaften

### 41st European Photovoltaic Solar Energy Conference and Exhibition

24.9. - 27.9.2024, A-1220 Wien, 23.-27.09.2024

#### EU PVSEC: Ganzheitlicher Ansatz für Photovoltaik nötig

Das Konferenzprogramm der EU PVSEC umfasst über 1.000 Plenarvorträge, mündliche und visuelle Präsentationen und ist in fünf Hauptthemen gegliedert.

Neben dem Schwerpunkt auf PV-Forschung, Technologien und Anwendungen spielen auch die Industry Sessions sowie das Networking der internationalen Teilnehmer eine große Rolle.

Die EU PVSEC betont dabei, dass ein ganzheitlicher Ansatz für eine umfassende und erfolgreiche Zukunft der Photovoltaik notwendig ist – wissenschaftlich, technisch, wirtschaftlich, politisch, geschäftlich sowie sozial und bildungspolitisch.

Zum Programm der EU PVSEC 2024

Lesen Sie dazu auf **forum** auch die ausführliche [Meldung](#) / News in englischer Sprache.

Veranstalter: WIP Renewable Energies | [www.wip-munich.de](http://www.wip-munich.de)

[www.eupvsec.org](http://www.eupvsec.org)



**REVOLVE**

European Photovoltaic Solar Energy Conference (EU PVSEC)

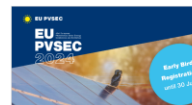
Energy / Events

23 - 27 September 2024 | Vienna, Austria

All Events

## Welcome to the 41st European Photovoltaic Solar Energy Conference and Exhibition. The innovation platform for the global PV solar sector.

The EU PVSEC is the largest international Conference for Photovoltaic research, technologies and applications and at the same time a PV Industry Exhibition, where specialized PV industry presents technologies, innovations and new concepts in the upstream PV sector. It gathers the global PV community to present and discuss the latest developments in Photovoltaics, to network and to conduct business. It is the world-renowned science-to-science and science-to-industry platform uniquely focused on the global PV Solar sector. The conference scientific programme is coordinated by the European Commission Joint



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#### CONFERENCES AND SUMMITS

## European Photovoltaic Solar Energy Conference & Exhibition

The JRC coordinates the scientific programme of the largest international gathering for photovoltaic research, technologies and applications, marking its 41st edition in 2024.

The European Commission's Joint Research Centre coordinates the scientific programme of the [European Photovoltaic Solar Energy Conference & Exhibition](#) (PVSEC 2024), marking its 41st edition in 2024. The Conference remains the premier global event for showcasing the latest advancements and driving innovation in solar energy research, technologies and applications, at a time when the energy industry is rapidly growing and the widespread adoption of solar PV reaching the multi-TW mark.

The JRC is also present at the exhibition. Visit our booth A7 to engage with our specialists and try [PVGIS](#), our web-based tool for calculating solar power output from PV systems; learn about the European Solar Test Installation ([ESTI](#)) facility, which validates the efficiency of PV devices, and explore our latest research publications.

 solar energy | energy research | clean technology | applied sciences

 Monday 23 September 2024, 12:00 - Friday 27 September 2024, 18:00 (CEST)

 Vienna, Austria

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## EU PVSEC 2024 Drives Innovation and Sustainability, Looking Ahead to Bilbao

The European Photovoltaic Solar Energy Conference and Exhibition (EU PVSEC) successfully concluded at the ACV Austria Center Vienna, hosting over 1,800 experts from 60 countries between 23–27 September 2024. The event showcased over 1,100

SEPTEMBER 27, 2024 [EU PVSEC 2024](#)

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The event showcased over 1,100 presentations on the latest innovations, reinforcing its role as a platform for photovoltaic research and collaboration.

...our to help bring together the brightest minds in photovoltaic solar undoubtedly be regarded as one of the most forward-thinking and the programmes of 2024." remarked Jonas Bergmiller, Managing Director of Energies.

...r Revolution with Innovation and Sustainability

C reflected the world's transition to a multi-terawatt PV era. Each day, installed worldwide than a typical nuclear power plant, producing most



## EU PVSEC 2024: Consensus and Conflict in European PV Production

By Jonathan Gifford · October 3, 2024 · 6 min read



**ENERGY**  
Tech Review

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### EU PVSEC 2024 Drives Innovation and Sustainability

Energy Tech Review | Monday, September 30, 2024

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The EU PVSEC conference is brimming with scientific progress, and real technology. It was sorely missing.

"We have a lot of advancement always beautiful to see at EU PVSEC."

#### Powering the Solar Revolution with Innovation and Sustainability

- Awarding of the Becquerel Prize

- Session Recordings Available Worldwide

- EU PVSEC 2025 in Bilbao, Spain

#### ANNEX – Technical Highlights of the Conference

The European Photovoltaic Solar Energy Conference and Exhibition (EU PVSEC) successfully concluded at the ACV Austria Center Vienna, hosting over 1,800 experts from 60 countries between 23–27 September 2024. The event showcased over 1,100 presentations on the latest innovations, reinforcing its status as the premier platform for photovoltaic research and collaboration.

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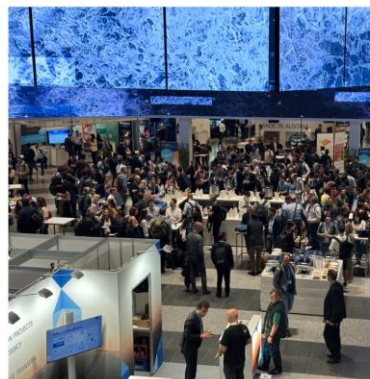
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### 'You can't stop at the door of the lab' – EU PVSEC 2024

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SEPTEMBER 27, 2024 MARK HUTCHINS

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EU PVSEC 2024, at the Austria Centre, Vienna



## PES

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### EU PVSEC 2024 Kicks Off in Vienna, Spotlights Solar Innovation and Global Collaboration

- Scientific Opening Presents Innovations in Global PV Manufacturing
- European PV Industry Faces Challenges and Opportunities Amid Global Shifts
- Becquerel Prize Award and High-Level PV Technology Discussion
- A Week Full of Presentations on the Latest Developments in PV
- Background EU PVSEC

The 41st European Photovoltaic Solar Energy Conference and Exhibition (EU PVSEC) commences today at the ACV Austria Center Vienna, marking the start of a pivotal week for the global solar energy sector. Running from 23 to 27 September 2024, this year's conference gathers leading scientists, industry experts, and policymakers from across the world to present cutting-edge developments and discuss the future of photovoltaics (PV) in the pursuit of global energy sustainability.

Scientific Opening Presents Innovations in Global PV Manufacturing

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## EU PVSEC 2024: Bringing the Platform for PV Innovation to the Heart of Europe!

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### EU PVSEC 2024: Unveiling Breakthroughs in Solar Innovation and Sustainability

Sustainability News · by Harriet · Gov Capital



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### EU PVSEC 2024: Driving Innovation and Sustainability

The European Photovoltaic Solar Energy Conference and Exhibition (EU PVSEC), held at the ACV Austria Center Vienna from 23–27



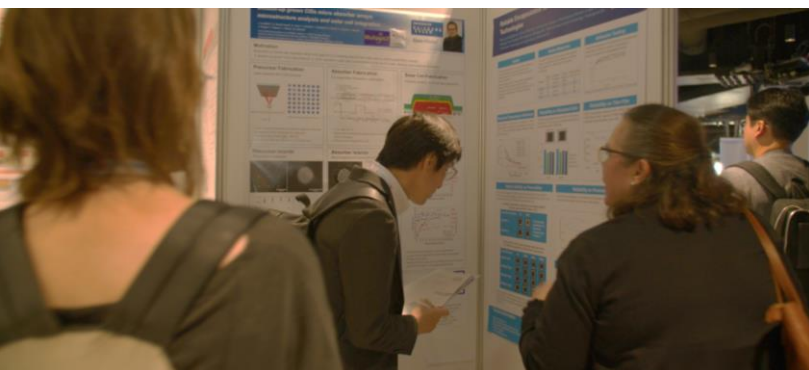
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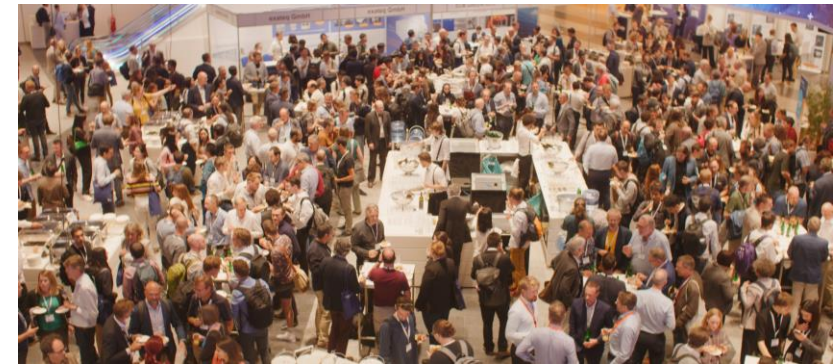
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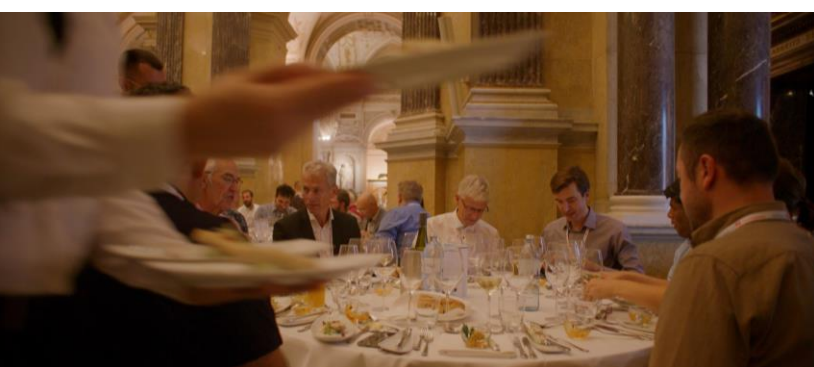
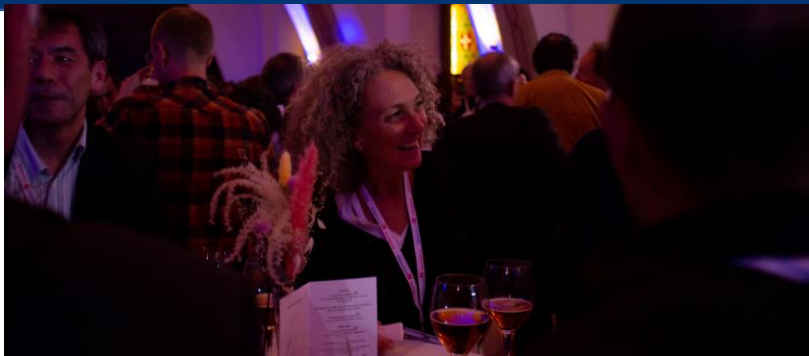
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**23 — 27**  
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# EVENT IMPRESSIONS



**POSTER  
AWARDS**



# EVENT IMPRESSIONS

For more impressions of the EU PVSEC 2024 visit [flickr.](https://www.flickr.com/photos/eupvsec/)





# FINAL REFLECTIONS

- The EU PVSEC 2024 once again proved its pivotal role in driving growth and innovation in the photovoltaic industry.
- Participants, including top academics, industry leaders, and policymakers, engaged in discussions that will shape the future of photovoltaic technology.
- Leading experts from around the world came together to share insights, tackle challenges, and explore new opportunities in solar energy.
- With sessions on cutting-edge research, technological advances, and policy developments, the event fostered knowledge exchange and new partnerships.

Thank you to all participants for your dedication and contributions, making the EU PVSEC 2024 a highlight for the global PV community.



**We thank the  
PV community and:**



**EU PVSEC**

**23 — 27**  
September

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# See you in 2025 in Bilbao!