

40th European Photovoltaic Solar Energy Conference and Exhibition 18 — 22 September 2023 (2))CCL Lisbon Post Event Report —

Lisbon Portugal Congress Centre

www.eupvsec.org



8 22 optember 2023 PVS CCL 2002 Lisbon 2002

Lisbon

Portugal

INTRODUCTION

The European Photovoltaic Solar Energy Conference and Exhibition (EU PVSEC) is the World's leading forum for PV research and development and the biggest conference on PV solar energy. Celebrating more than 40 years of history, the EU PVSEC is the longest running, renowned PV conference in the World and the annual meeting point for PV experts from research, development, and the industry. With more than 1,000 scientific presentations, including oral and poster talks and expert workshops as well as special industry forums every year, it is known as the most important platform for exchange between PV science and industry.

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





18 — 22

Centre

September



KEY STATISTICS





Lisbon — Portugal CCL Lisbon Congress Centre

18 — 22 September

Ξ

2

40th European Photovoltaic Solar Energy Conference and Exhibition

PVSEC

 \mathcal{L}



	Caller City		2023		
She Che		- CTE-	1	Germany	471
2-25-24	The Bar	727	2	France	137
and a	AN DENTS	State -	3	China	106
	A PERMINE.	Se l'	4	Italy	92
and the second	Santer VI	CA.	5	Portugal	88
· Stran	E PV	CELEN S.	6	South Korea	82
Top 10	. 2000	A. A.	7	Spain	82
TOP TO	Start		8	The Netherlands	81
countries		The set	9	Switzerland	70
Map: Countries of participants <u>Conference</u>	el .		10	Japan	63



18 September

— 22

Centre



KEY STATISTICS

Conference presentations by Topic

TOPIC 5: PV in the Energy Transition 14%

TOPIC 4: **PV** Systems Engineering, Integrated/Applied PV 29%

TOPIC 1: Silicon Materials and Cells 13%

TOPIC 2: Thin Films and New Concepts 24%

TOPIC 3: Photovoltaic Modules and BoS Components 20%





HIGHLIGHTS AND TAKE-AWAYS

• **Positive Growth**: Increasing proposals signal a promising path for Solar Energy Research in Europe and Globally.

Lisbon

Portugal

- **c-Silicon's Relevance**: c-Silicon remains central to manufacturing, driving current and future developments.
- Efficiency Milestones: New cell structures like TOPCon and heterojunctions boost cell efficiency by 0.5%/year, nearing theoretical limits (26.8%).
- Diverse & State-of-the-Art Research: Extensive research in New Concepts, Perovskites, Tandem cells, and PV Systems underscores PV's importance in the Energy Transition.
- **Perovskite Breakthrough:** Perovskite silicon tandem cells achieve >33% efficiency, marking a significant leap in PV technology.







 18
 22

 September
 2023

 2023
 EU Alth European Photovoltaic Solar Energy Conference and Exhibition

 CCL
 PVSEC

 Lisbon
 20023

 Congress
 20023

Lisbon

Portugal

HIGHLIGHTS AND TAKE-AWAYS





- Sustainability & Resilience: EU PVSEC emphasises a sustainable PV industry, lowering carbon footprint, enhancing durability, and securing the supply chain.
- Innovative Modules: Novel materials and reliability testing are hot topics in PV module manufacturing.
- **Diverse Applications:** PV integration in BIPV, VIPV, floating PV, Agri-PV, and roads expands its application possibilities.
- **Data-Driven Operations:** Operational data sharing and AI-driven strategies are gaining traction in PV.
- Future Scenarios: Exploration of renewable scenarios, policy implications, and societal challenges shape PV's role in the energy transition.





EXHIBITION FACTS

Exhibitors from the following areas of the value chain







Consultancy



Research Centres and Universities



Industrial Equipment for Solar Manufacturing



Simulation and Testing Tools

Chemical and Material Solutions

Ingot, Wafer, Cells and Modules Production







Lisbon — Portugal Lisbon

— 22

2023

CCL

Congress

40th European Photovoltaic Solar Energy Conference and Exhibition

PVSEC

023

18 September

EXHIBITION FACTS







PARTICIPANTS

3D-Micromac | 3E | 3S Swiss Solar Solutions | 3SUN | 4JET microtech | Aiko solar | AIST | AIT | AMROCK | Apollo-Power | Applied Materials | Apricum - The Cleantech Advisory | Atotech Deutschland | Australian Photovoltaic Institute | Autarg | Avancis | Azur Space Solar Power | BayWa r.e. | Becquerel Institute | BELECTRIC | Bottero | BT Imaging | CARBON | CEA | Centralesupelec | centrotherm international | CF Energy | CIEMAT | Clean Energy | Cleantech Solar | CNRS | Coatema Coating Machinery | Colorado School of Mines | Coveme | CSEM | DAS Solar | DEWA | DNV DTU | ECM Greentech | Ecoprogetti | EcoSys Abatement | EDP Renewables | EERA | Eindhoven University of Technology | EMPA | Endurans Solar | ENEA | ENGIE | eni | Enlog | ENS-Paris-Saclay | EPFL | Eternal Sun | ETRI | Eurac Research | European Commission JRC | European Space Agency | Exasun | exateg | First Solar | Fluxim | FOM Technologies | Forschungszentrum Jülich | Fortum Renewables | Fraunhofer CSP | Fraunhofer IMWS | Fraunhofer ISE | | Fraunhofer IST | Freiburg University | Friedrich-Alexander University Erlangen-Nuremberg | Fronius International | FuturaSun | G2V Optics | Galp Energia | GCL Technology | Glass to Power halm elektronik | Hanwha Q-CELLS | HBKU | HD HYUNDAI ENERGY SOLUTION | Heraeus | HI ERN |

Lisbon -

Portugal

HOLOSOLIS | Honda R&D | HZB | ib vogt | I-EM | imec | Indeotec | Indian Institute of Technology Bombay | International Energy Agency | IPVF | ISC Konstanz | ISFH | ITRI | JA Solar Technology | Japan Advanced Institute of Science and Technology | Jinko Solar | Jonas & Redmann Photovoltaics Production SolutionsKalvon ΡV Karlsruhe Institute of Technology | Khalifa University | KU Leuven LAPLACE Renewable Energy Technology | LayTec Lightyear | LONGi Solar Technology | LuxChemtech Maxeon Solar | Meyer Burger | Mines Paris Mondragon Assembly | Mounting Systems | Nagase Chemtex America Next2Sun Technology Nextracker | NexWafe | Nines Photovoltaics | Ningbo Ulica Solar | Nissan Technical Centre Europe NorSun | ODTÜ-GÜNAM | OFI | OTT HydroMet (Kipp & Zonen) | Oxford PV | Photovoltaik-Institut Berlin | PV Lighthouse PVA TePla | Pvsyst | Qatar Environment and Energy Research Institute | Q-CELLS Europe | R&D NESTER | RCT-Solutions REC Solar | RENA Technologies | RSE | SALD BV Sandia National Laboratories | SCHMID Group Semco Smartech, SEMILAB Semiconductor Physics Laboratory Co. Ltd. | SERIS SINGULUS TECHNOLOGIES, and many more...*



18 — 22 September 2023 Lisbon — Portugal CCL Lisbon Congress Centre

oltaic Solar Energy

PRESS COVERAGE







SURVEY RESULTS

85%

RATED THE VARIETY AND QUALITY OF THE OVERALL PROGRAMME **BETWEEN 7-10**

95 % **RATED THEIR** SATISFACTION WITH THE EU **PVSEC BETWEEN** 7-10

GENERAL CONFERENCE PROGRAMME IS THE #1 REASON FOR ATTENDANCE 58%, **FOLLOWED BY PRESENTING THE WORK TO OTHER** PEERS

78% **ARE LIKELY OR VERY LIKELY ATTENDING THE EU PVSEC 2024**

80% WILL MAKE USE OF THE **STREAMING ON DEMAND SERVICE** OVER 64% RATE THE **SUSTAINABILITY ACTIONS WITH 7 OR HIGHER**

EU



18 — 22

Centre

September



TESTIMONIALS

"I heard of EU PVSEC through my Professor, João M. Serra, who acted as General Chair of this year's conference. From there, I felt eager to attend the conference as a volunteer, since my studies fall into the conference's topic and, otherwise, I wouldn't have been able to participate. Throughout the week, I got to know the EU PVSEC 2023 staff at each station, as well as attend some lectures during off-hours. I won't be able to attend next year's event, but I surely will attend future ones." Pedro Graça, University of Lisbon

"9/10. This year (2023) is much better than the last EU PVSEC that I attended in 2019." Chandany Sen UNSW Sydney "I thought it was really interesting to see how both EU policy and industry are working towards regional production. It was good to see the big picture of the present and future of PV in addition to hearing about all the detailed results from research." Anonymous "Diverse topics and challenges in many fields." Elisabetta Achilli, RSE



18 — 22 September



TESTIMONIALS

"It was a great event." halm electronik gmbh "Exhibition has improved since past editions. Could grow further, to show more variety within the different sectors. However, it is not Intersolar, so scientific focus/quality would be interesting / a chance for exhibitors to get expert opinions on their products" Anonymous

EO RI

"Organisation was nice, very kind staff." EDF ENR PWT (PHOTOWATT)

> "Exhibition was great, and probably my best highlight of the conference." Anonymous



18 — 22 September 2023 al CCL Lisbon Congress Centre

Lisbon —

Portugal

PARTNERS, SUPPORTERS, SPONSORS







PARTNERS, SUPPORTERS, SPONSORS







PARTNERS, SUPPORTERS, SPONSORS





18 — 22 September

EU ADIA European Photovoltale Solar Energy Conference and Exhibition PVSEC

2023



















For more impressions of the EU PVSEC 2023 visit <u>flickr.</u>









Questions? Get in touch!

pv.conference@wip-munich.de pv.exhibition@wip-munich.de

Event organised by:



WIP Renewable Energies Sylvensteinstr. 2 | 81369 Munich | Germany www.wip-munich.de