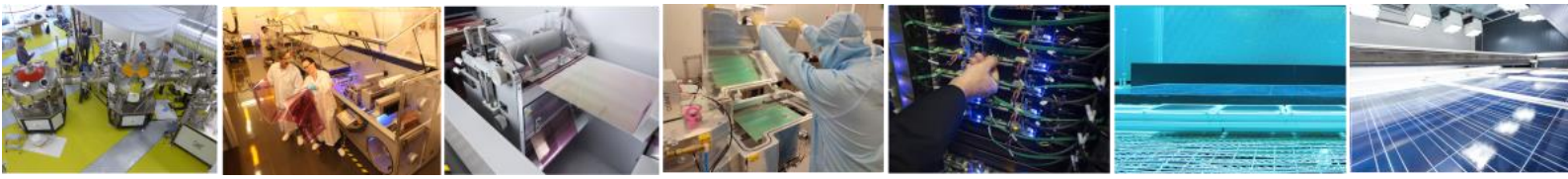
VIPERLAB
OPEN ACCESS TO THE EUROPEAN PEROVSKITE RESEARCH INFRASTRUCTURES
FULLY CONNECTED VIRTUAL and PHYSICAL PEROVSKITE PHOTOVOLTAIC LAB
Newsletter#5– July 2023



WELCOME ADDRESS

COORDINATOR' MESSAGE

We are delighted to bring you the latest edition of our newsletter, where we reflect on the achievements and fruitful activities of the VIPERLAB project over the last six months. It has been an exciting journey as we have made significant progress across all ten work packages (WPs), bringing us closer to our project goals.

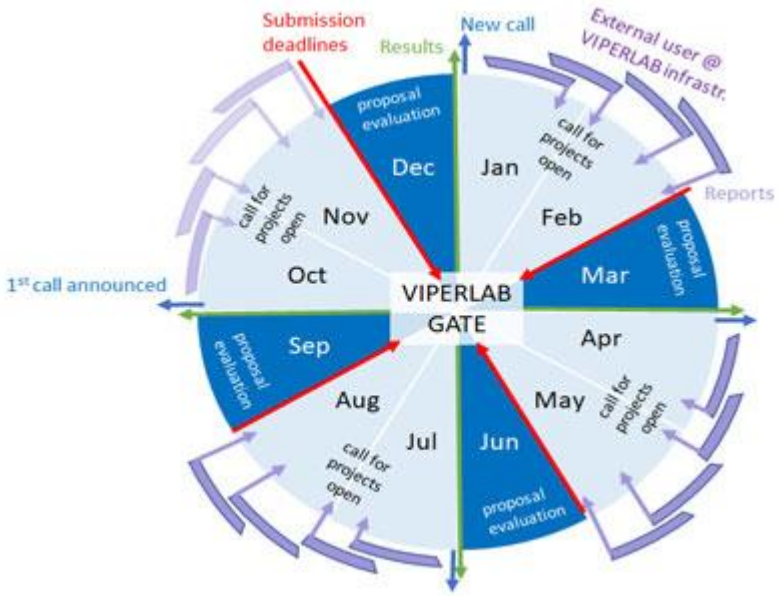
In the last half of the year, our dedicated partners have worked hard to achieve key milestones in each work program, including two strategic workshops, a public event with industry, a harmonised measurement protocol, two more calls for user applications with about 25 more projects approved, and the demonstration of tandem modules. We are also proud to share that our periodic report, showcasing our collective efforts during the first 18 months, was met with success and received excellent evaluations. This positive feedback reinforces our commitment to delivering impactful results and contribute to the common efforts of the perovskite community.

One of the most recent highlights of the year was our second yearly meeting that we had end of May in Portici, Italy. This event organised by ENEA partner provided an invaluable opportunity to discuss our progress, address challenges, and foster collaborations across WPs. Looking ahead, we are excitedly planning the upcoming months to ensure continued progress.

VIPERLAB HIGHLIGHTS

VIPERLAB calls in 2023. Save the dates!

Are you interested in submitting a proposal to free access in our excellent and complimentary EU perovskite PV infrastructures?



In 2023 you will still have the possibility to submit your proposal, take note! The upcoming calls to foster perovskite PV development and testing in Europe to build a unified access service towards EU academic and industry researchers will open between **1st July and 31st August** and **1st October and 30th November**. Do not miss this opportunity to utilised European top-ranked Perovskite Infrastructures. Save the dates and submit your proposal!

Read more

VIPERLAB as key umbrella for Perovskite PV experiments

Visit the **VIPERLAB Virtual Access Portal (VAPo)** and learn more about the different experiments carried out so far in the framework of the VIPERLAB project.

Read more

Prof. Eva Unger' interview at PV Magazine

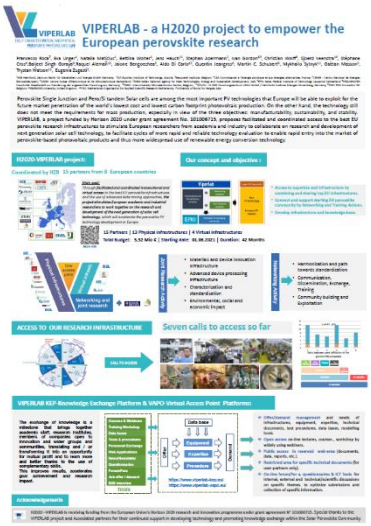
Watch the **interview of Prof. Eva Unger in PV Magazine**!

Prof. Eva Unger, coordinator of the VIPERLAB project, talked about our mission, goals and objectives to support the European community in bringing an efficient, stable and sustainable Perovskite technology to the market. Do not miss it!

Watch the interview

VIPERLAB at RetelFV conference!

Our colleagues Dr. Francesco Roca (ENEA) participated on behalf of the VIPERLAB project at the Conferenza 2023 della Rete Italiana del Fotovoltaico (RetelFV) in Milan. He presented the VIPERLAB poster "VIPERLAB - a H2020 project to empower the European perovskite research". Furthermore he held meetings with several interested researchers and students, highlighting the opportunities that VIPERLAB can offer to the Italian R&D&I Community. Do you want to know more?



Read more

VIPERLAB INFRASTRUCTURES: SERIES OF WEBINARS

HZB HY-SPRINT infrastructure: Stability Lab

The **Helmholtz Innovation Lab HySPRINT** is equipped with two very relevant equipment for stability testing:

The first offers opportunities for long term measurements and ageing of a very high number of single-junction PSC and monolithic tandem solar cells under realistic conditions, being operated at their Maximum Power Point (MPP).

The second instrument, is a Tandem Ageing-System, equipped with electronics that allow us to track 20 tandem solar cells in parallel.

Read more about the infrastructure here.

Watch the video

Contacted Probe-box HySprint infrasctucture (© HZB)

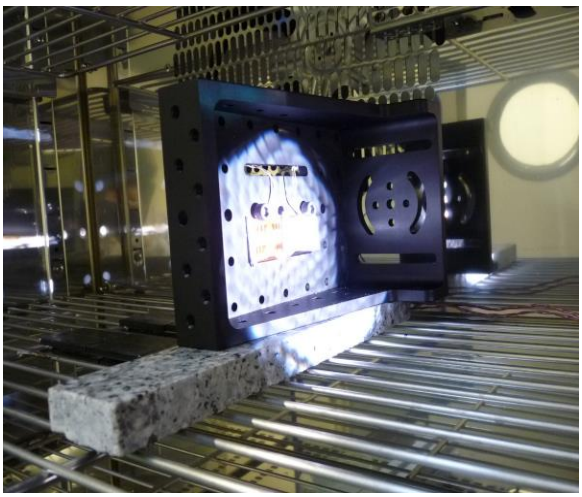
CENER SOLPVLAB infrastructure: Accredited PV Module Testing Lab

CENER SolPVlab is an EC Accredited PV Module testing Lab offers state of the art equipment for the development and application of specific protocols to characterise photovoltaic devices based on different non-concentrating/concentrating PV technologies organic and perovskite materials.

The infrastructure offer both custom-made stabilisation, and aging and reliability testing based on approved standards such as IEC standards for all PV technologies.

Read more about the infrastructure here.

Watch the video



Stabilisation test of a Perovskite Solar Cells (© CENER)

CHOSE-UniTOV S2S SJ PSK and mechanically stacked tandem line

This infrastructure consists of two main infrastructures: the first**, CHOSE@ROME**, is located on the campus of the University of Rome Tor Vergata (Italy), and focuses on technological manufacturing processes and device characterisation.

The second, **CHOSE@TURIN**, associated with the University of Turin (Italy), is focused on the development of materials from the point of view of chemistry.

Read more about the infrastructure here.

Watch the video

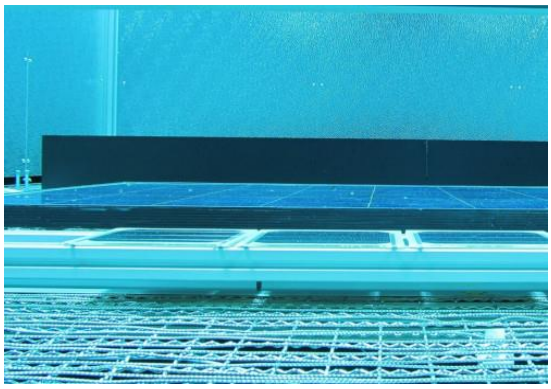
UNITOV-CHOSE structure

AIT-PVS Lab: Tools for PV characterisation/reliability

AIT Austrian Institute of Technology is Austria's largest research and technology organisation that offers more than 20 years of experience applying beyond state-of-the-art laboratory infrastructure. The **AIT-PVS infrastructure** offered by AIT to VIPERLAB project consists of tools for PV characterisation/reliability and development of thin film coatings, which makes AIT Lab one of the few locations in Europe where such thorough tests can be realised.

Read more about the infrastructure here.

Watch the video



Accelerated UV ageing for cells/modules (up to 250 W/m2)

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CEA-PSK - PLATFORM FOR SJ AND PSK/SI TANDEM STABILITY ASSESSMENT

The **CEA-PSK** – Platform for SJ and PSK/Si tandem stability assessment located on the CEA-LITEN facilities. A unique infrastructure aiming to realise, characterise and optimise Single junction Perovskite and tandem silicon/Perovskite cells.

Read more about the infrastructure here.

Watch the video

Lab roll to roll laminator (encapsulation) @CEA-LITEN

IMEC – ThinFilm PV lab

The **IMEC-ThinFilm PV lab** that allows to process full perovskite modules up to 35x35cm² as well as Pk/Si tandem of full wafer size. The line allows versatility of carrier materials to be used, ranging from glass, plastic to metal sheets.

Read more about the infrastructures here.

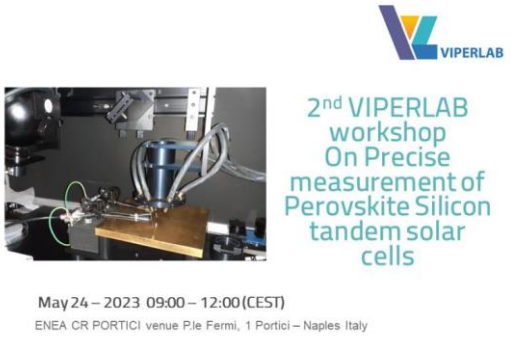
Watch the video

IMEC-ThinFilm PV Lab

VIPERLAB'S EVENTS

2nd VIPERLAB workshop on Perovskite Solar Cells Characterisation

In conjunction with the 2nd VIPERLAB Annual Assembly, the VIPERLAB consortium organised this hybrid workshop on **"Precise measurement of Perovskite Silicon tandem solar cells".** Overall 50 people joined the event onsite and 90 people attended online to discuss about the peculiarities of precise measurement of silicon Tandem solar cells, to discuss the needs and advantages of a standardised and homogeneous approach for device characterisation and processing,



Read the proceedings

Interested in the discussion?

VIPERLAB First Public Event!

The VIPERLAB First Public event titled **"Status of achievements in the perovskite based PV field-Performance, Infrastructure, Community and Strategic Research and Innovation agenda"** was held in conjunction with the **ETIP-PV Annual Conference** on 11 May 2023.

The event featured a panel of VIPERLAB partners and key stakeholders from academia, industry and policy representatives.
The conclusions of the event are now available.

Read the proceedings

VIPERLAB at the Energy Conversion and Storage Days

In the framework of the **Energy Conversion Days**, on 22nd March VIPERLAB held a combined workshop to discuss about the VIPELRAB's strategy and the harmonisation/ standardisation challenges faced by Perovskite PV.

The 2nd Strategic VIPERLAB workshop enabled to identify clear steps towards the definition of a unified roadmap and specific timelines for the three identified KPIs of the Strategic Research and Innovation Agenda (SRIA) on single-junction perovskite PV modules. The results will be used to write a first draft of the VIPERLAB SRIA for European perovskite PV technology.

The aim of the workshop was also to determine the main harmonisation/standardisation challenges that need to be solved with clear timelines and clear priorities regarding device characterisation and processing, sample exchange, reporting and (special) applications to accelerate large-scale industrialisation of perovskite PV technologies.

Read more

LCA Methodology Harmonisation workshop

On 13 & 14 March the VIPERLAB project organised the **LCA-Methodology Harmonisation Workshop** in Brussels. The overreaching goal of the workshop was to connect different groups and institutions conducting Life-Cycle Assessment (LCA) methodology and their results for perovskite solar cells. The workshop also aimed to foster the creation of a "think tank" on sustainability assessment for supporting the development of the European technology roadmap for PV.

Read more

VIPERLAB SHINING AT RELEVANT EVENTS!

1st CYPRIOT PV Workshop

The VIPERLAB project was present at the **1st Cypriot PV Workshop: Degradation and TESTARE joint event**. Mittal Ankit gave a talk about the harmonisation and standardisation challenges of Perovksite PV. The workshop mainly focused on new material developments, scalability and outdoor testing of the Perovskite PV.

Read more

Did you join the VIPERLAB project at INTERSOLAR 2023?

The VIPERLAB project was present at Intersolar 2023! Our colleagues Dr. Stephan Abermann (Austrian Institute of Technology) and Dr. J. Dagar (Helmholtz-Zentrum Berlin-HZB) attended the world's leading exhibition for the solar industry where they disseminated the VIPERLAB project. Dr. Abermann gave a talk about "Harmonisation & Standardisation Challenges of Perovskite PV: Lessons learned from the H2020-project VIPERLAB" during the session "The Future of Solar Cell Technologies: From the Lab to Production".

Read more

HOPV Conference 2023

The **15th International Conference on Hybrid and Organic Photovoltaics** took place on 12-14th June 2023 in London. The conference organised by the Swansea University – partners at the VIPERLAB project - provided an excellent opportunity for scientists and engineers around the world to discuss the latest developments in hybrid and organic photovoltaics. Below our colleagues' talks:

Read more

- Prof. Eva Unger had an invited talk on "Accelerating Perovskite PV deployment by adopting FAIR data principles".
- Dr. Tom Aernouts from IMEC talked about "Efficient Structures And Processes for Upscaling of Perovskite Modules and Tandems".Prof. Aldo Di Carlo talked about "See-through perovskite and tandem perovskite/organic solar cells and modules".

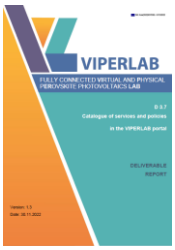
TandemPV International workshop 2023 in France

On 6-8 June, the VIPERLAB project attended the **3rd TandemPV International Workshop in Chambéry** (France). More than 280 participants from 30 countries participated to present, share and discuss latest tandem PV technologies. Below some of our VIPERLAB colleagues talks:

- Dr. Christian Wolff, EPFL: Efficient Perovskite/Silicon Tandem Solar Cells by Solution Processing
- Dr. Patricia S.C. Schulze, Fraunhofer ISE: Perovskite top solar cells for 2-terminal silicon based tandem and multijunction solar cells
- Dr. Polyxeni Tsoulka, CEA-LITEN, INES, National Institute of Solar Energy: Optimisation of Wide-Bandgap Perovskite absorbers for Single Junction or Tandem Solar Cells
- Dr. Florent Sahli, CSEM: High Efficiency 3-Terminal Perovskite/Silicon Tandems Based on a Tunnel Junction Interdigitated Back Contact Silicon Heterojunction Solar Cell

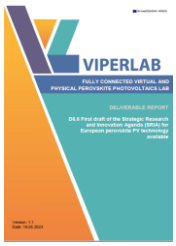
Read more

VIPERLAB PUBLIC REPORTS

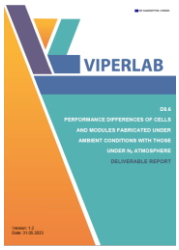


D3.7 Catalogue of services and policies in the VIPERLAB portal

D4.3 First draft of harmonised test protocols



D6.6 First draft of the SRIA for European Perovskite PV Technology Available

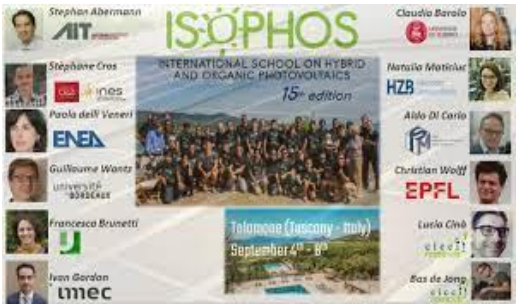


D8.6 Performance differences of cells and modules fabricated under ambient conditions with those under N2 atmosphere

UPCOMING EVENTS ON PV

Join us during the 15th edition of the ISOPHOS 2023!

With the support of the VIPERLAB project, the 15th edition of the International School on Hybrid and Organic Photovoltaics will be held from 4th till 8th of September 2023 in the wonderful atmosphere of Talamone (Tuscany-Italy).



Register now and meet our VIPERLAB partners working on Perovskite PV.

Read more

EU PVSEC 2023 in Lisbon!

The **EU PVSEC** is the world's leading forum for PV Research and Development and the biggest Conference on PV Solar Energy. And this year it celebrates its 40th anniversary in Lisbon from 18 to 22 September.

Join the VIPERLAB partners in Lisbon!

Read more

PSCO 2023 taking place in Oxford in September!

The **6th International Conference on Perovskite Solar Cells and Optoelectronics (PSCO 2023**) and the workshop "Industrialisation of Perovskite Thin Film Photovoltaic Technology" will take place at the Mathematical Institute of Oxford, UK from 18trh September to 20 September 2023.
PSCO23, organised in collaboration with the VIPERLAB project, will be a combination of invited talks, contributing talks and poster presentations in a meeting which will bring a broad spectrum of the PV community together to discuss and share knowledge on the latest advances in perovskite materials, devices and photophysical and optoelectronic properties and phenomena.

Read more

European Materials Research Society (E-MRS Fall meeting 2023)

The **2023 Fall Meeting of the European Materials Research Society (E-MRS)** will take place from September 18 to 21, 2023 at the main campus of the University of Technology in Warsaw (Poland) and will consist of parallel symposia with invited speakers, oral and poster presentations assorted by one plenary session to provide an international forum for discussing recent advances in the field of materials science.

Read more

Will you be attending this event? Join our colleague Dr. Natalia Maticiuc (HZB), project manager at the VIPERLAB project, who will give an oral talk to advertise the VIPERLAB user access to the East-EU research community!

. MEET THE CONSORTIUM

HZB Helmholtz Zentrum Berlin · AIT Austrian Institute of Technology · cea · CENER · csem · EPFL École Polytechnique Fédérale de Lausanne · imec · Fraunhofer · JÜLICH Forschungszentrum · PNO · Tor Vergata University of Rome · TNO innovation for life · ENEA · Swansea University Prifysgol Abertawe · Becquerel Institute

JOIN THE VIPERLAB COMMUNITY:

KEP VAPo

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