



VIPERLAB webinar

Standardisation for Perovskite PV

January 17th, 2024 – 13:00 – 15:30 (CET)

Welcome and Introduction:

Prof. Eva Unger, HZB, Viperlab project Coordinator

**Stephan Abermann, AIT | Hauch Jens, HIERN | Ana Belén Cuel, CENER
Mark Khenkin, HZB, Michael Götte | HZB**





FULLY CONNECTED VIRTUAL AND PHYSICAL
PEROVSKITE PHOTOVOLTAICS LAB

Short information about VIPERLAB

Prof. Eva Unger, HZB,
Viperlab project Coordinator

Slides: N. Maticiuc, Technical Manager of VIPERLAB

VIPERLAB Mission

VIPERLAB



VIPERLAB Mission Statement:

- Facilitate and coordinate transnational and virtual access to (some of) the best EU perovskite infrastructures
- Stimulate European academic and industrial researchers to work together on R&D of the next generation of solar cell technology
- Accelerate the perovskite PV technology development in Europe



VIPERLAB Project Partners & Accessible Research Infrastructure

VIPERLAB

PV Manufacturing & Testing Facility



S2S Process PSK Line



ThinFilm PV lab



PV Lab/PV Center
PSK/Si tandem processing



PSK, Si and PSK/Si tandem stability assessment



Accredited PV Module Testing
Modelling (MODELAB)



Manufacturing Infrastructure
Characterization Infrastructure
Virtual Infrastructure



HySPRINT Stability Lab
EMIL facilities (PES)
Perovskite Database



Solar Cell Manufacturing & Characterization



R2R coating line
AMANDA tool



PVS Lab (tools for PV characterization)



CHOSE S2S Si/PSK mechanically stacked tandem line

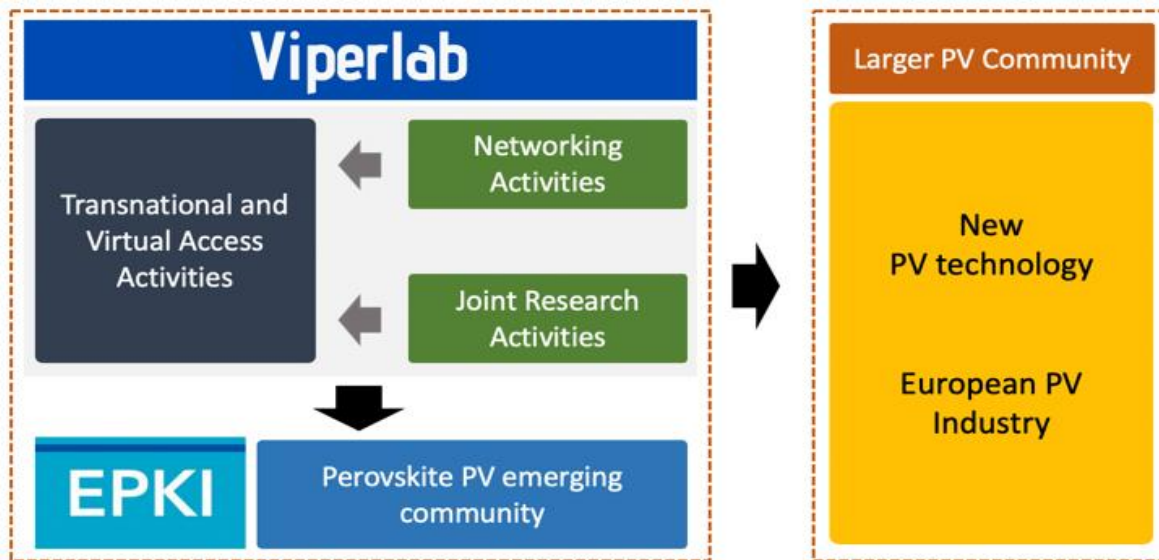


Tandem PSK/Si Lab
CRESCO



VIPERLAB concept and objectives

VIPERLAB



- Unite top EU research infrastructures
- Connect and support EU perovskite community

The core activities of VIPERLAB

VIPERLAB

WP2 – TA1-User friendly management of Transnational and Virtual Access to dedicated infrastructures (Lead: HZB)

WP3 – VA1-Virtual access to database infrastructure, simulation and data analysis tools (Lead: FZJ)

WP4 – NA1-Harmonization and path towards standardization (Lead: AIT)

WP5 – NA2-Communication, Dissemination, Exchange and Training (Lead: ENEA)

WP6 – NA3-Community Building and Exploitation (Lead: IMEC)



Transnational and
Virtual Access
Activities

Networking
Activities



Joint Research
Activities



WP7 – JRA1-Materials and Device innovation infrastructure
Digital design, multi level device modelling and new applications (Lead: EPFL)

WP8 – JRA2-Advanced device processing infrastructure equipment, processes and standardization thereof (Lead: TNO)

WP9 – JRA3-Characterization and standardization
stability, reliability, test protocols and standards (Lead: CEA)

WP10 – JRA4-Environmental, social and economic impact
LCOE, LCA, recycling and bankability (Lead: FRAUNHOFER)



- Established protocols for measurement and aging (2 Round Robins organized with WP9)
- Defined main harmonization/ standardization challenges

- Strategic Research and Innovation Agenda
- Strategic workshops with key stakeholders
- Public events with industry and policy makers

WP4 – NA1-Harmonization and path towards standardization (Lead: AIT)

WP5 – NA2-Communication, Dissemination, Exchange and Training (Lead: ENEA)

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VIPERLAB road mapping workshop for perovskite PV technology development and harmonization in Europe

Wednesday, 22 March 2023 9:00 - 12:30

KIT, Campus Nord in Karlsruhe/Eggenstein-Leopoldshafen

We are pleased to invite you to the next VIPERLAB roadmapping workshop for perovskite PV technology development and harmonization in Europe. This workshop will be held on March 22nd, 2023 9:00-12:30 during Energy Conversion and Storage Days' events, organized by the Karlsruhe Institute of Technology (KIT) and will take place at the premises of KIT, Campus Nord in Karlsruhe/Eggenstein-Leopoldshafen

The workshop will be focused on:

-  Strategic Research and Innovation Agenda (SRIA) on single-junction perovskite PV
-  Harmonization Challenges

Agenda:

Introduction of the workshop and the VIPERLAB project

Part 1 – Strategic Research and Innovation Agenda (SRIA) on single-junction perovskite PV:

In September 2022, a first Viperlab workshop on "a Strategic Research and Innovation Agenda (SRIA) for perovskite PV modules" was held in Milano, Italy during the EU-PVSEC conference. Starting from last year's drafted European Strategic Research and Innovation Agenda for Photovoltaics of EERA-PV and ETIP-PV, the Key Performance Indicators (KPI) for the development of single-junction perovskite PV in Europe for 2030 were adapted at this first workshop. In this follow-up workshop, we will define a clear roadmap and timeline on how to reach these KPIs by 2030.

Part 2 – Harmonization Challenges:

In the VIPERLAB project, three strategic workshops (WS) are organised to determine and communicate the main harmonization/standardization challenges that need to be solved to accelerate large-scale industrialization of perovskite PV technologies. The first WS was organized on the 14th and 15th of September 2022 in Vienna, Austria. Amongst others, this WS resulted in a common understanding that further work is needed to improve harmonization activities regarding device characterization and -processing, sample exchange, reporting and (special) applications, respectively. To address this and develop a clear timeline and clear priorities, this second VIPERLAB WS will be focused towards "harmonization roadmapping".

Summary and Next Steps

WP4 – NA1-Harmonization and path towards standardization (Lead: AIT)

WP5 – NA2-Communication, Dissemination, Exchange and Training (Lead: ENEA)

WP6 – NA3-Community Building and Exploitation (Lead: IMEC)

2022

2023

2024

- Feedback on identified stakeholders list
- **Strategic Workshop** with key stakeholders to prepare common roadmaps, white paper, a SRIA for perovskite PV
- **Public event** with industry and policy makers
- **Second strategic workshop...**
- **Third strategic workshop ...**
- **Second public event ...**
- **Draft of the Strategic Research and Innovation Agenda (SRIA) for EU perovskite PV technology available**
- **Final version of SRIA**



CONSORTIUM



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