

VIPERLAB – an infrastructure platform to accelerate the development of perovskite PV technology in Europe



H2020-INFRAIA-2020-1

Natalia Maticiuc* and Eva Unger

Helmholtz-Zentrum Berlin für Materialien und Energie, Hahn-Meitner-Platz 1, 4109 Berlin Germany *natalia.maticiuc@helmholtz-berlin.de

VIPERLAB stays for 'Fully connected Virtual and physical PERovskite photovoltaics LAB'

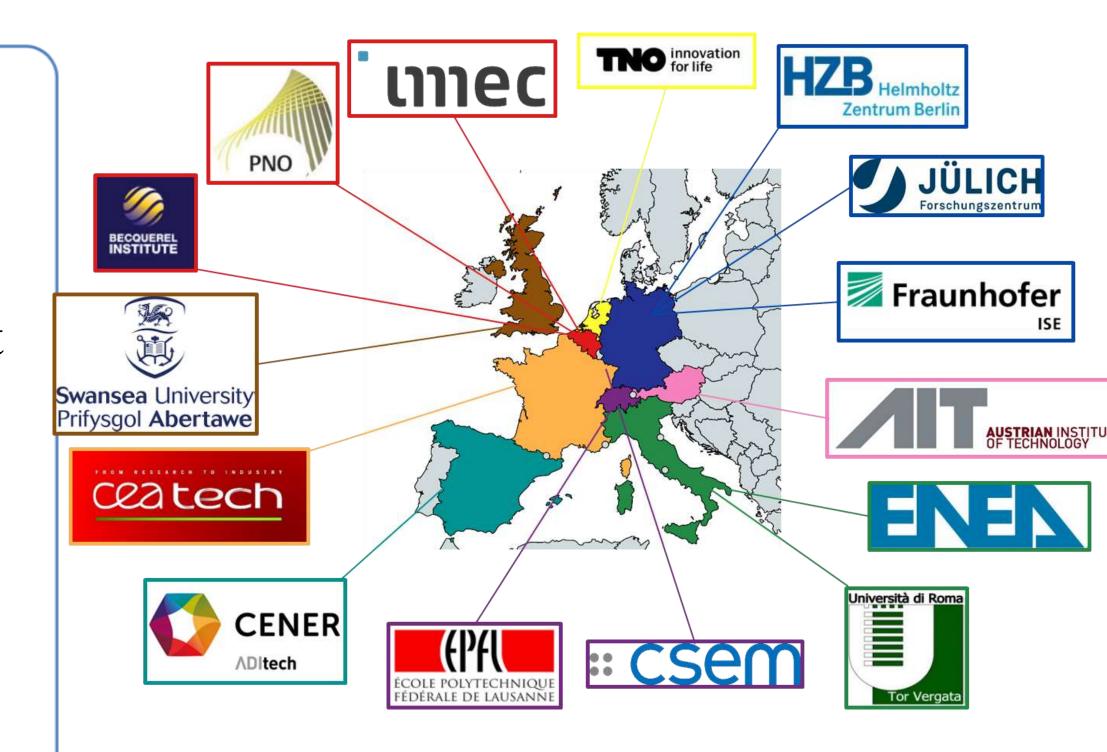
A European strategy including relevant and dedicated infrastructure to develop the perovskite (PSK) devices is missing so far.

Through the best EU perovskite infrastructures VIPERLAB aims to stimulate EU academic and industrial researchers to work together and accelerate the perovskite

Combine and facilitate access to EU top-ranked PSK PV infrastructures.

Connect and support the starting EU PSK community.

Further develop physical and virtual PSK infrastructures, build databases on materials and devices



https://www.viperlab.eu/



- EMIL- deposition tools and soft/hard XPS
- HySPRINT Stability Lab.

Ceatech

• PSK platform encapsulation and stability tests for cells and tandem.

TNO innovation for life

S2S process PSK line complete process of PSK modules.

Swansea University Prifysgol Abertawe

PV Manufacturing and Testing Facility

CHOSE line from

from materials to

characterization.

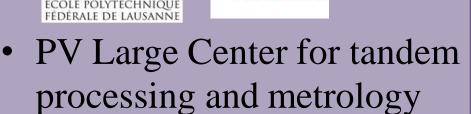
device



• PVS Lab infrastructure –from lab-scale to industrial scale PV modules



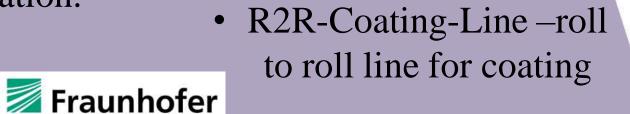
• SOLPVLAB accredited PV testing Lab JÜLICH



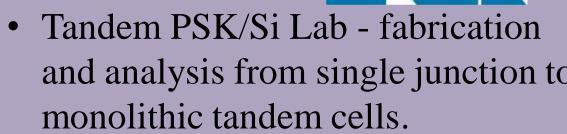
to complete packaging.

:: csem

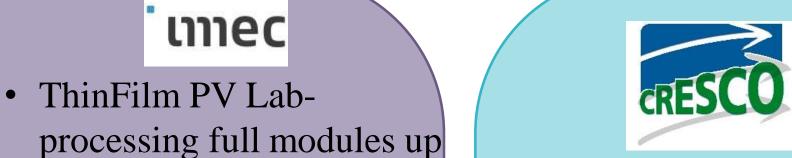
physical



 Solar Cell Manufacturing & Characterization up to interconnected devices.



and analysis from single junction to



Virtual infrastr.

One

acces

point

COMPUTING LAB

- lead by ENEA, Italy
- offers production quality, a serviceoriented system for high performance and/or high throughput computing



DIGITAL DATABASE

- lead by HYB, Germany
- approx. 100 collaborators world-wide
- all perovskite solar cell device data available
- over 15000 published perovskite papers



SIMULATION LAB

- lead by CENER, Spain
- TCAD simulation tools with different modules of Silvaco software for modelling the electrooptical behavior of solar cells



VIRTUALLY ACCESSIBLE PROCESSING LINE

Lead by FZ Juelich, Germany

• Fully automated line for deposition and characterization of materials and devices

Infrastructures **GATE-** One access point platform for all physical and virtaul infrastructures of VIPERLAB:

https://www.helmholtz-berlin.de/pubbin/hzbgate



Students, researcher, SME and industry representatives are invited to **submit** their proposals on GATE



External and internal experts will peer review the proposals



Selected proposals will **get access** to one of VIPERLAB infrastructures with coverd costs

First call on

Networking an joint research

COURSES

TRAINING WORKSHOPS

PERSONNEL EXCHANGE

STRATEGIC RESEARCH AND INNOVATION

Agenda (SRIA) for European perovskite PV technology available

STRATEGIES TO EXPLOIT long term relationships and

multidisciplinary collaboration among EU R&DI Community

ROUND ROBIN REPORTS:

Guidelines for aging assessment, encapsulation, and electrical performance measurement

HARMONIZATION/ **STANDARDIZATION** outcomes to IEC and ISOS

TECHNOLOGY RELATED

Performance differences of cells and modules fabricated under different ambient conditions

The use of industrially acceptable solvent systems for efficient PSK PV devices

Database of material usage, energy demand and process flows

Definition of key device architectures

