

COST Action CA21148: "Research and International Networking on Emerging Inorganic Chalcogenides for Photovoltaics"

09/06/2026 Online, Tallinn, Estonia

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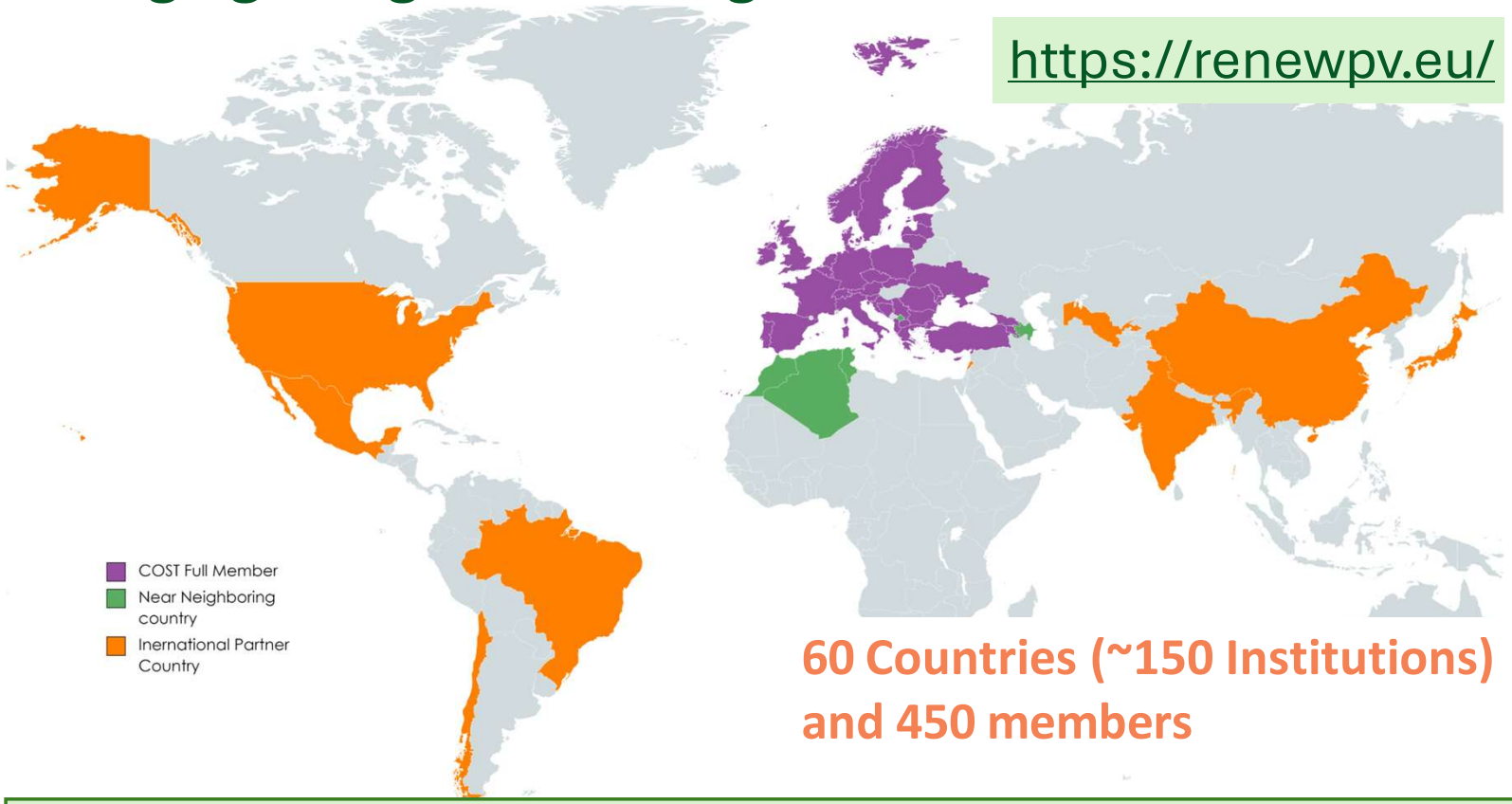
ReNewPV - Research and International Networking on Emerging Inorganic Chalcogenides for Photovoltaics

COST Action CA21148

https://renewpv.eu/



60 Countries (~150 Institutions) and 450 members



Chair
N. Spalatu
Taltech Uni



Vice-chair
N. Maticiuc
HZB

Near Neighbour:

- Azerbajan
- Morocco
- Algeria
- Tunisia
- Kosovo

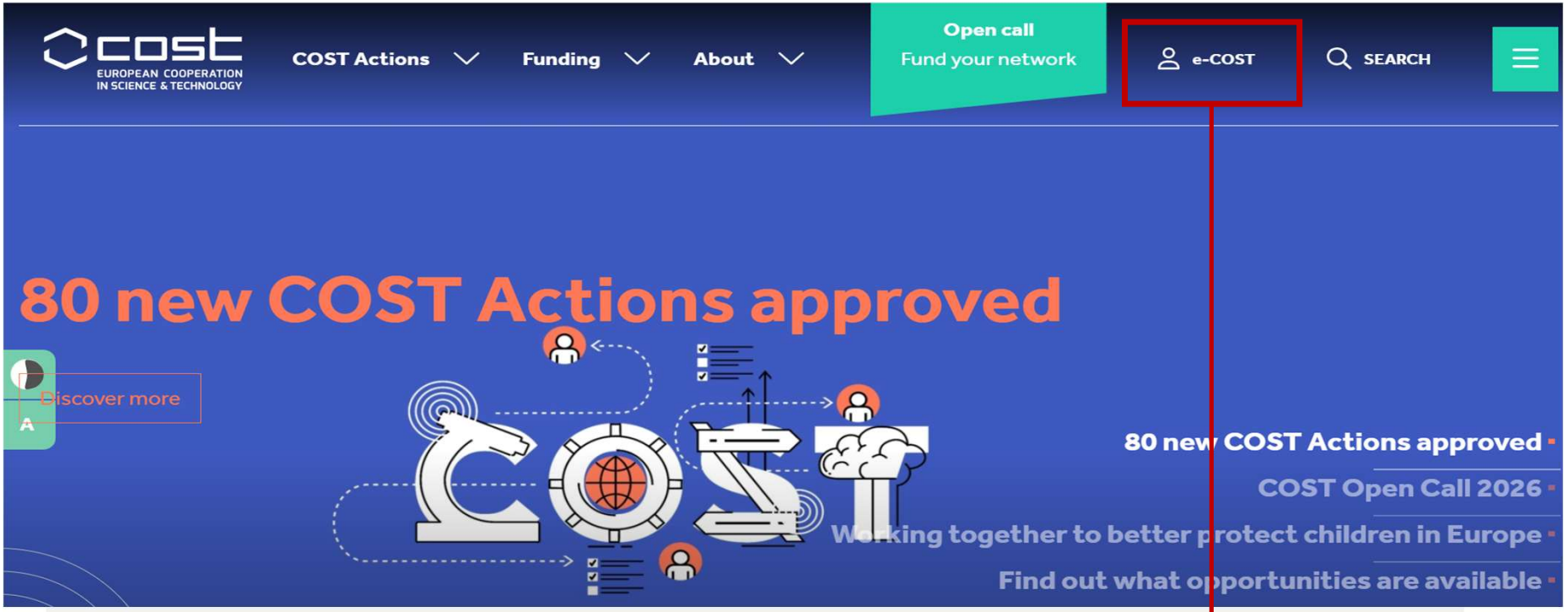
International partners:

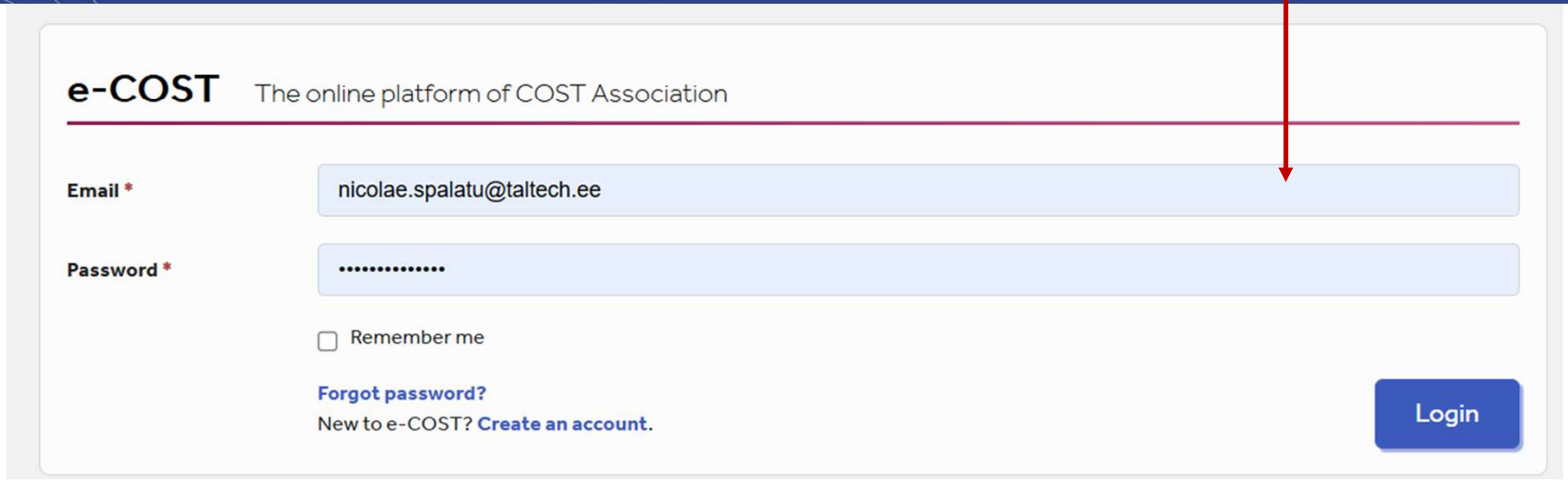
- USA
- Brazil
- China
- Japan
- Mexico
- Uzbekistan
- Chile
- India

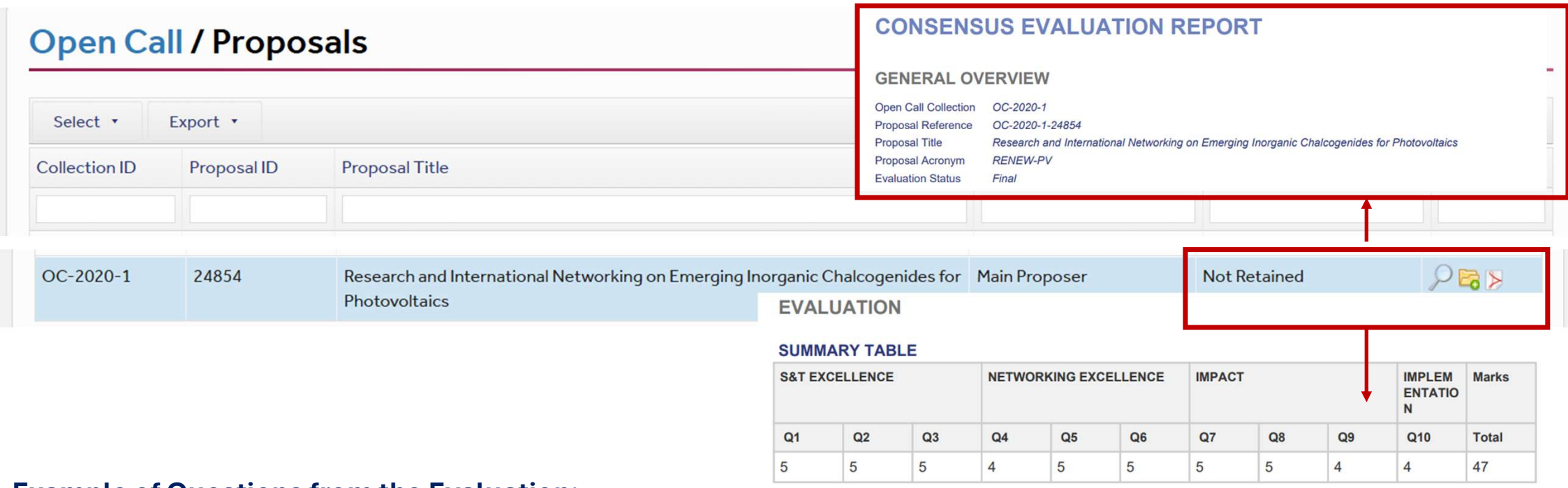
Cooperating members:
Israel

The EU Green Deal directives endorse the development of new renewable energy concepts using non-toxic materials with low environmental impact and low greenhouse gas emissions.

- **To meet this goal, RENEW-PV brings together** leading and pioneering academic and industry researchers from across Europe and worldwide, targeting to pool current and stimulate further research development and deployment of emerging inorganic chalcogenide thin-film PV technologies.


cost
EUROPEAN COOPERATION IN SCIENCE & TECHNOLOGY
COST Actions
Funding
About
Open call
Fund your network
e-COST
SEARCH
80 new COST Actions approved
Discover more
80 new COST Actions approved
COST Open Call 2026
Working together to better protect children in Europe
Find out what opportunities are available


e-COST
The online platform of COST Association
Email *
nicolae.spalatu@taltech.ee
Password *
Remember me
Forgot password?
New to e-COST? Create an account.
Login



Example of Questions from the Evaluation:

Q9 - Is the plan for dissemination and/or exploitation of results clear and attainable and does it contribute to the dialogue between science and the general public or policy?	Mark
The proposal addresses this question in a very good manner.	4

In the metrics, some indicator values seem overestimated (i.e. the number of dissemination at conferences and/or the number of publications (100 + per year)), or underestimated (the STSMs number, 10 during a project period, seems too low, especially if not motivated by COVID-19 pandemic). An explanation of the mechanism of motivating the production of so many newsletters, stakeholder meetings and other activities not included in action funding is missing in order to make the attainability of this dissemination plan more convincing.

IMPLEMENTATION

Coherence and effectiveness of the work plan

Q10 - Is the work plan (WGs, tasks, activities, timeframe, deliverables and risk analysis) appropriate to ensure the achievement of the objectives?	Mark
The proposal addresses this question in a very good manner.	4

OC-2021-1	25446	Research and International Networking on Emerging Inorganic Chalcogenides for Photovoltaics	Main Proposer	New Action

EVALUATION

SUMMARY TABLE

S&T EXCELLENCE			NETWORKING EXCELLENCE			IMPACT			IMPLEMENTATION	Marks
Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Total
5	5	5	5	5	5	5	5	5	5	50

Network of Proposers Features

Distribution of Affiliations

COST Full Member (26) : Austria , Bulgaria , Croatia , Cyprus , Czech Republic , Denmark , Estonia , Finland , France , Germany , Greece , Italy , Latvia , Lithuania , Luxembourg , Moldova , Norway , Poland , Portugal , Romania , Slovakia , Spain , Sweden , Switzerland , Türkiye , United Kingdom
COST Cooperating Member (0)
COST Partner Member (0)
Near Neighbour Country (3) : Georgia , Russian Federation , Ukraine
International Partner (8) : Australia , Brazil , China , Japan , Mexico , South Korea , United States , Uzbekistan
European RTD Organisation (0)
EU Institutions, Bodies, Offices and Agencies (EC/EU) (0)
International Organisation (3)

COST Inclusiveness Target Countries

53.8 %

Number of Proposers

116

Number of Early Career Investigators

This figure takes into account only those Propos
which their PhD was awarded and the date of su

25

Core Expertise of Proposers: Distribution by Sub-Field of Science

The Core Expertise is defined by each Proposer at registration and it is the sub-field of sci

31.9% Materials engineering
28.4% Physical Sciences
15.5% Electrical engineering, electronic engineering, Information engineering
12.9% Chemical sciences
4.3% Nano-technology
6.9% Other

Institutional distribution of Network of Proposers

Based on institutional affiliation deemed as most relevant to the Proposal by each Proposer.

87.3% Higher education, research-performing & associated organisations
8.5% Governmental organisation or agency (national, regional or local)
2.8% Business enterprise (small- or medium sized; SME)
1.4% Non-for profit organisation or association

Higher education, research-performing & associated organisations: 62
Business enterprise (small- or medium sized; SME): 2
Governmental organisation or agency (national, regional or local): 6
Non-for profit organisation or association: 1

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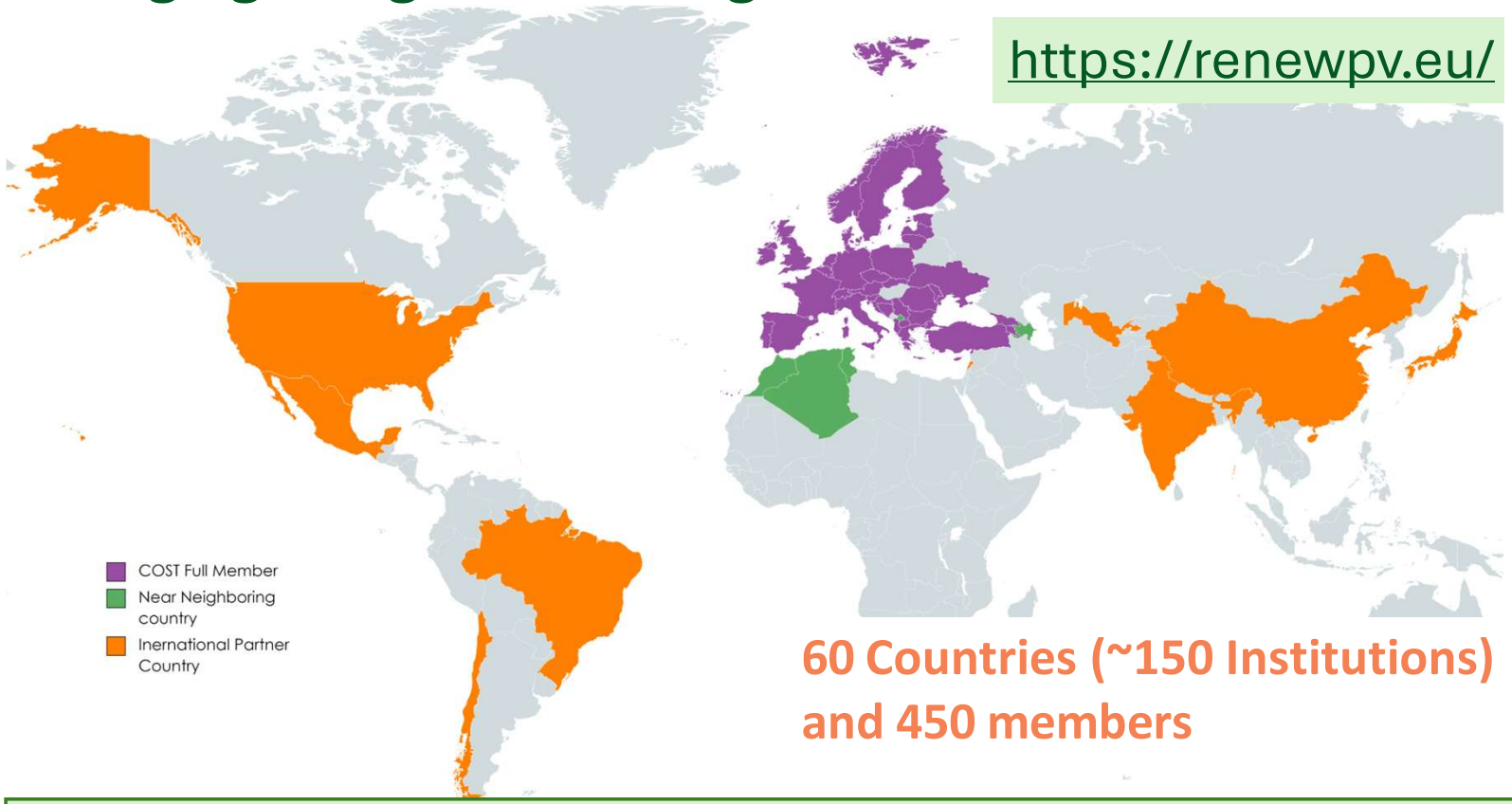

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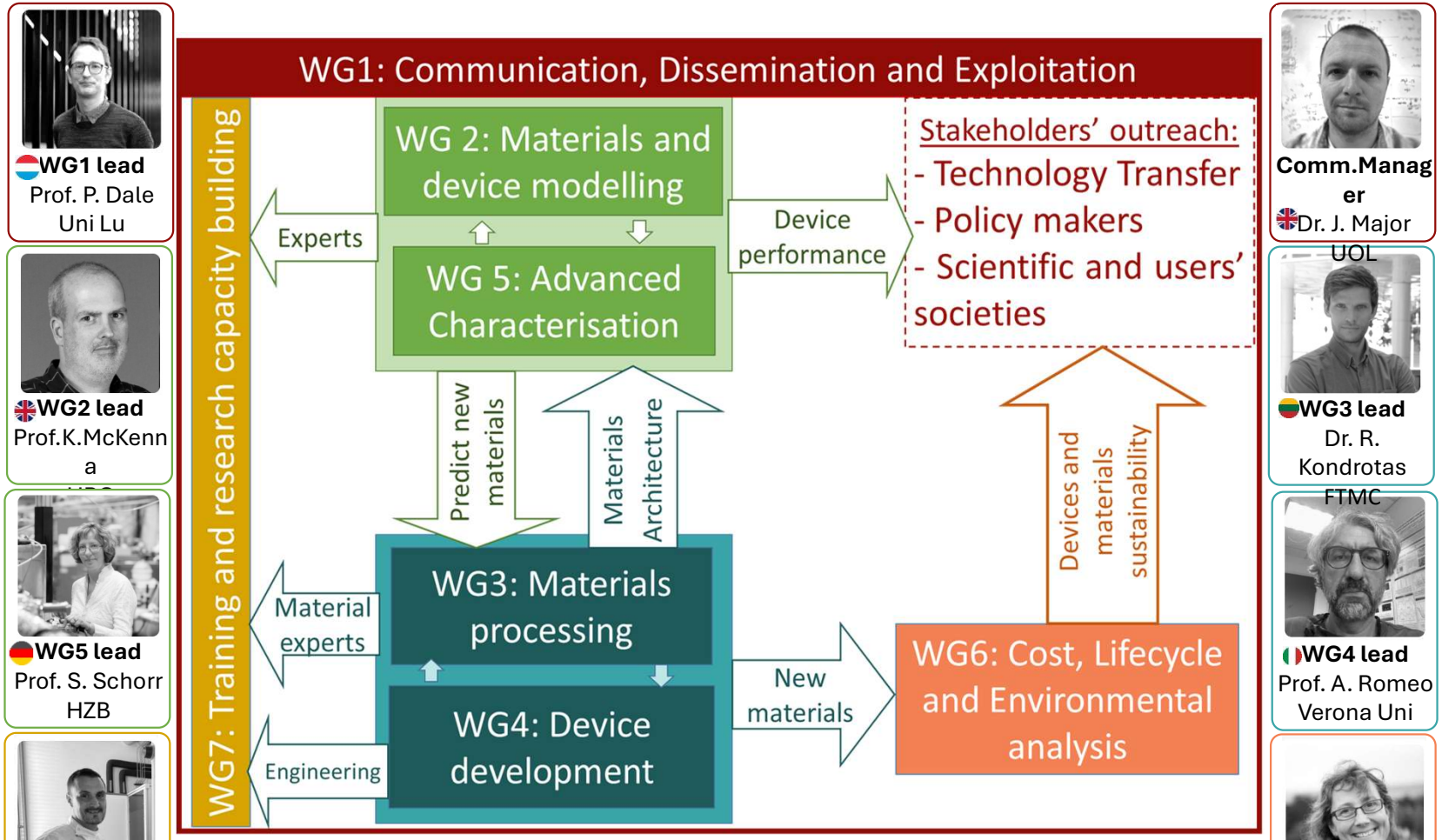
- **To meet this goal, RENEW-PV brings together** leading and pioneering academic and industry researchers from across Europe and worldwide, targeting to pool current and stimulate further research development and deployment of emerging inorganic chalcogenide thin-film PV technologies.

Structure of ReNewPV Action



WG1 lead
Prof. P. Dale
Uni Lu

WG2 lead
Prof.K.McKenna

WG5 lead
Prof. S. Schorr
HZB

WG7 lead
Prof. E. Saucedo
UPC

Comm.Manager
Dr. J. Major
UOL

WG3 lead
Dr. R. Kondrotas
FTMC

WG4 lead
Prof. A. Romeo
Verona Uni

WG6 lead
Prof. M. Edoff
Uppsala Uni

https://renewpv.eu/

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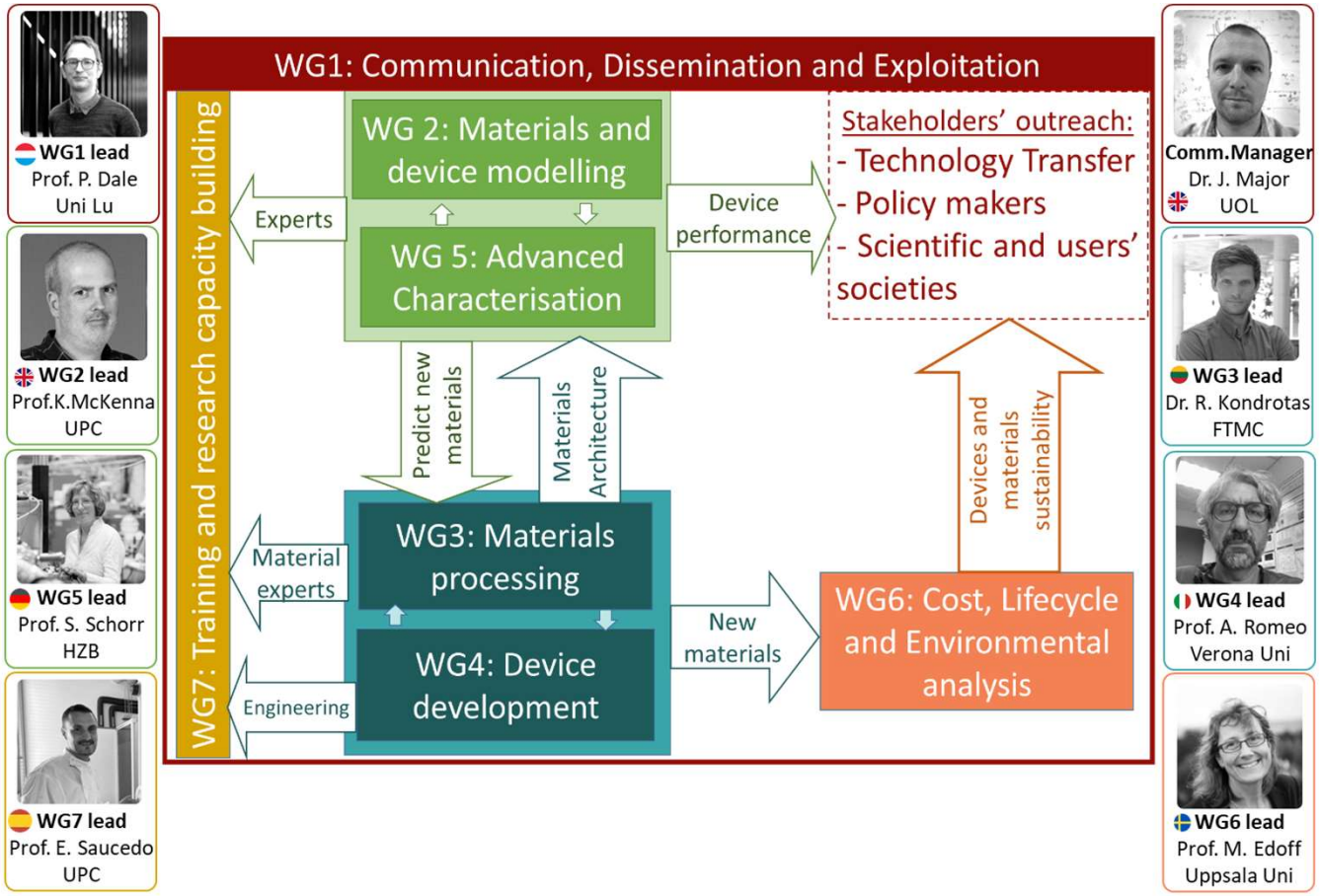
COST Action CA21148

RENEW-PV seeks to

- work on emerging chalcogenides
- generate and exchange knowledge
- enhance creativity and collaboration
- promote research excellence
- educate
- foster the career development

Structure of ReNewPV Action



https://renewpv.eu/

MANAGEMENT COMMEETTEE (MC)
2 per Country (Total: 43 members)

AT	Prof	Florian	Libisch	Vienna University of Technology
CY	Prof	George Elias	Georghiou	University of Cyprus
CY	Dr	Maria	Hadjipanayi	University of Cyprus
CZ	Prof	Bohuslav	Rezek	Faculty of Electrical Engineering, Czech Technical University
DE	Dr	Natalia	Maticiuc	Helmholtz-Zentrum Berlin
DE	Prof	Julien	Bachmann	Friedrich-Alexander-Universität Erlangen-Nürnberg
ES	Prof	Alejandro	Perez-Rodriguez	IREC: Catalonia Institute for Energy Research
ES	Ms	Eugenia	Zugasti	National Renewable Energy Center
EE	Dr	Ilona	Oja Acik	Tallinn University of Technology
UA	Prof	Lyudmyla	Piskach	Lesya Ukrainka Volyn National University
FR	Dr	Jean Francois	Guillemoles	UMR IPVF
FR	Dr	Nicolas	Stein	University of Lorraine
GE	Prof	Avto	Tavkhelidze	Ilia State University
UK	Dr	Jon	Major	University of Liverpool
UK	Prof	Keith	McKenna	University of York
EL	Prof	Emmanuel	KYMAKIS	Hellenic Mediterranean University
HR	Dr	Andreja	Gajovic	Rudjer Boskovic Institute
HR	Dr	Tihana	Cizmar	Institut Rudjer Boskovic
IT	Prof	Alessandro	Romeo	University of Verona
IL	Prof	Alex	Laikhtman	Holon Institute of Technology (HIT)
LU	Dr	Phillip	Dale	University of Luxembourg
LT	Dr	Rokas	Kondrotas	Center for Physical Sciences and Technology
LV	Dr	Aivars	Vembris	Institute of Solid State Physics of University of Latvia
LV	Dr	Raitis	Grzibovskis	Institute of Solid State Physics
MK	Prof	Roman	Golubovski	University Ss. Cyril and Methodius
MK	Dr	Aleksandar	Petrovski	Ss Cyril and Methodius University
PT	Prof	Hugo	Águas	Faculty of Sciences and Technology
PT	Dr	António	Cunha	Universidade de Aveiro
PL	Dr	Maciej	Sibiński	Lodz University of Technology
PL	Dr	Wojciech	Linhart	Wroclaw University of Science and Technology
SE	Prof	Marika	Edoff	Uppsala University
SI	Prof	Marko	TOPIC	Univerza v Ljubljani
TR	Prof	Gülfeza	KARDAŞ	Çukurova University
TR	Prof	Savaş	SÖNMEZOĞLU	Karamanoglu Mehmetbey University
BG	Dr	Rositsa	Gergova	Bulgarian Academy of Sciences
BG	Dr	Maxim	Ganchev	Central Laboratory of Solar Energy and New Energy Sources
RS	Prof	Stanko	Tomic	Vinca Institute of Nuclear Sciences
RO	Prof	Aurelian Catalin	GĂLCĂ	MC Members	MC Member	ac_galca@
RO	Prof	Sorina	IFTIMIE	MC Members	MC Member	sorina.iftim

ReNewPV Network today

Gender Balance

Total Members: 400

45% Females

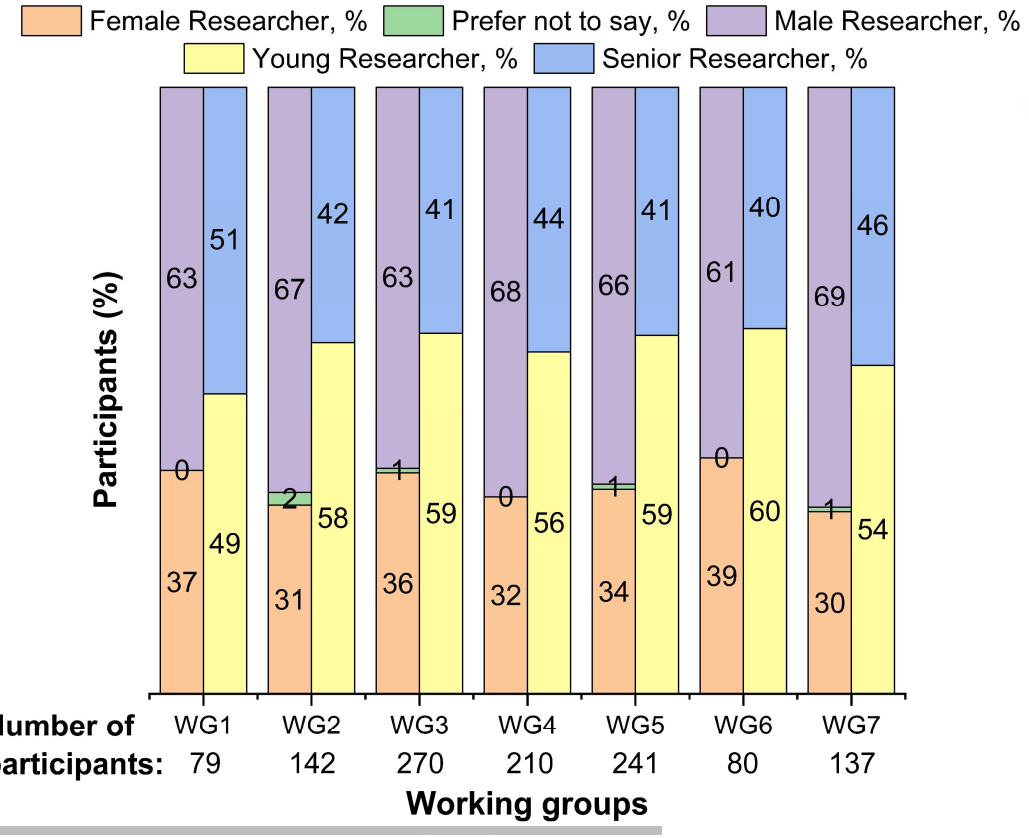
55% Males



Early Career Investigators

200 members (50%)





Industry: 8

SOLARSTONE

sunplugged

CTFSOLAR

CNBM

Pavement

SOLEMS

L'énergie lumière

SOLITEK

Brite

Powertec Ltd

Actions / CA21148 / Management Tool



Organising meetings, workshops & conferences



Short-term scientific missions





Training schools



Communication & dissemination activities



Virtual networking tools

- Grant Period Overview
- **Meetings**
- Training Schools
- Grants
- Action Dissemination
- OERSA
- Reports
- « Manage Period 3
- « Action Grant Periods

RenewPV
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Example of Implementation: Grant Period 4:

Period start date: 01-11-2025
Period end date: 31.10.2026

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Goals:

1. Conferences, Workshops, and Working Group Meetings – Integration, Industry Engagement, and Legacy Dissemination

- Organize key events such as the 4th ReNewPV Workshop + 16th European Kesterite Conference (Tallinn, June 2026), the ReNewPV Booth at EU PVSEC 2026, an industrial WG meeting, and cross-WG sessions to integrate results from modelling, processing, device development, advanced characterization, and sustainability studies.
- These activities will serve as the final showcase of ReNewPV achievements, strengthen collaboration with industry and policy stakeholders, and consolidate long-term partnerships and sustainable research directions beyond the Action. Members will represent ReNewPV through invited and oral talks at major international conferences, ensuring broad dissemination and continued visibility of the network.

2. Training and Career Development – Building Long-Term Capacity and Leadership

- Implement the 7th NEXTGEN International School & Workshop (Palma de Mallorca, September 2026) and advanced training sessions such as the X-Ray School at HZB (March 2026) and online Master Classes on advanced characterization and modelling.
- Provide hands-on technical training, mentoring, and grant-writing sessions to strengthen the skills of Early Career Investigators (ECIs).
  All training materials will be made openly available via the ReNewPV website to ensure continuity and legacy of learning within the European PV community.

Grant Period 4:

Period start date: 01-11-2025
Period end date: 31.10.2026

RenewPV
COST Action CA21148

Goals:

3. Support for Young Researchers and Mobility Grants – Sustaining HR Capital and Inclusiveness

- Implement at least 15 Short-Term Scientific Missions (STSMs) and selected Virtual Mobility (VM) grants fostering collaboration across laboratories and disciplines.
- Promote Inclusiveness Target Country (ITC) and Dissemination Conference (DC) grants to strengthen diversity, geographic balance, and visibility of results.
- Encourage mentorship between senior researchers and ECIs and ensure that all grantees contribute short communication outputs for the ReNewPV website and Impact Series, reinforcing inclusiveness and outreach.

4. Implementation of Dissemination and Conference Grants – Visibility, Internationalisation, and Sustainability

- Support ReNewPV participation at major international conferences (E-MRS 2026, EU PVSEC 2026, MRS Meetings, and related key international conferences) through Young Researcher, ITC, and Dissemination Conference Grants.
- These activities will promote European leadership in emerging inorganic chalcogenide PV and enhance the visibility of Action results at the global level.
- Encourage collaboration with publishing partners and industry networks to ensure long-term impact, knowledge transfer, and continuity beyond the Action.

Grant Period 4:

Period start date: 01-11-2025
Period end date: 31.10.2026

RenewPV
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Actions / CA21148 / Management Tool

#	Period	From	To	Status	Allocated Budget	Grant Amount	Options
1	AGA-CA21148-1	2022-11-01	2023-10-31	Closed	152,500.00 EUR	152,500.01 EUR	
2	AGA-CA21148-2	2023-11-01	2024-10-31	Closed	240,550.00 EUR	240,550.10 EUR	
3	AGA-CA21148-3	2024-11-01	2025-10-31	Closed	219,000.00 EUR	219,000.00 EUR	
4	AGA-CA21148-4	2025-11-01	2026-10-05	Active	268,000.00 EUR	268,000.00 EUR	

Grant Period 3:

Overview of activities

- **15th European Kesterite+ & 3rd ReNewPV Workshop**

🗓️ *June 11–13, 2025,* 📍 *Helmholtz-Zentrum Berlin, Lise-Meitner Campus, Berlin-Wannsee, Germany*

👩‍🏫 Host organizers / contacts: Prof. Susan Schorr - WG5 Leader, Dr. Galina Gurieva - WG5 Co-working Leader





Grant Period 3:

Overview of activities

COST Action CA21148

🔹 **6th NEXTGEN International School & Workshop** ✅

🗓️ *September 9–12, 2025,* 📍 *Palma, Mallorca, Spain*

Host organizers/contacts: Prof. Edgardo Saucedo (UPC, WG7 Leader) and Prof. Alejandro Pérez Rodríguez (IREC, key leader for industry engagement in ReNewPV



Grant Period 3:

Overview of activities

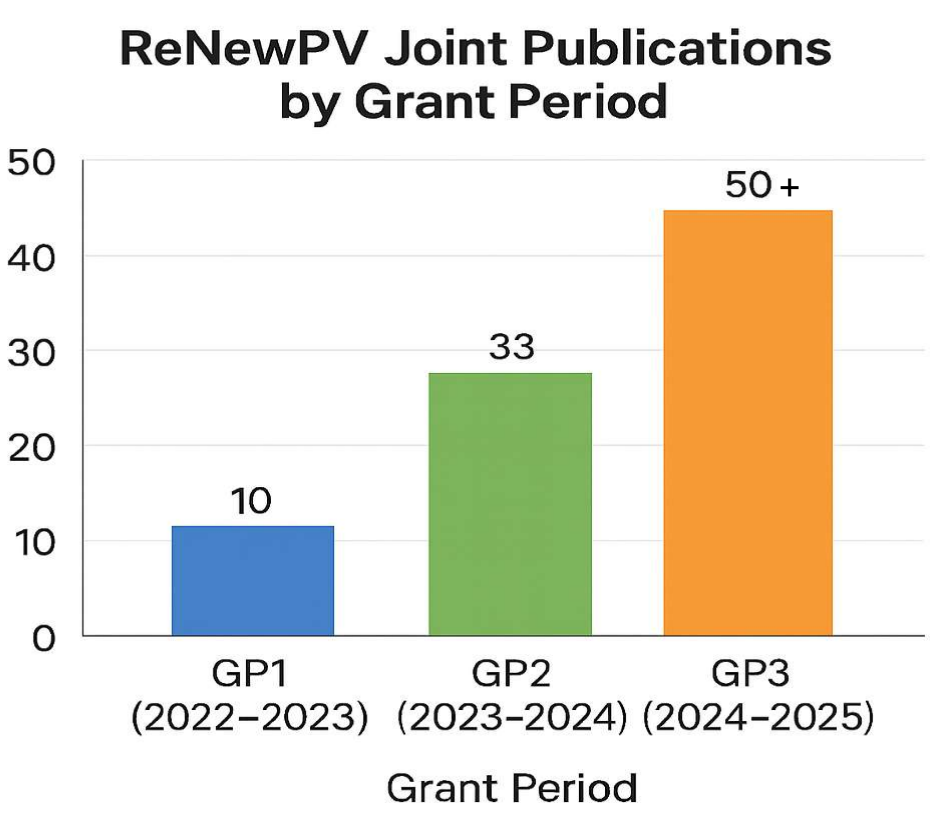
- **ReNewPV BOOTH, EU PVSEC 2025**

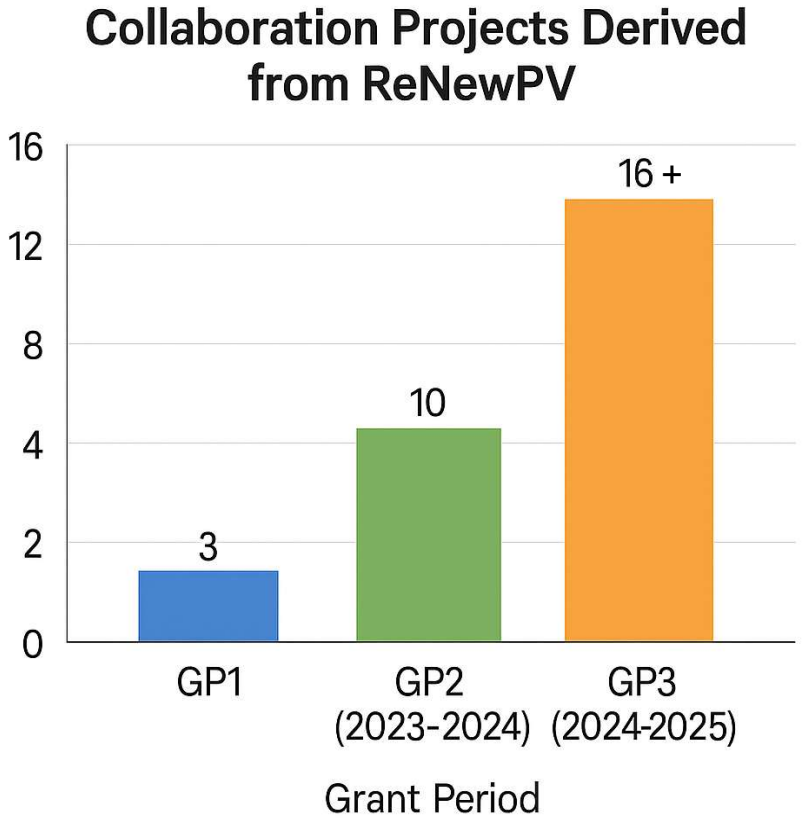
September 22–26, 2025, Bilbao, Spain





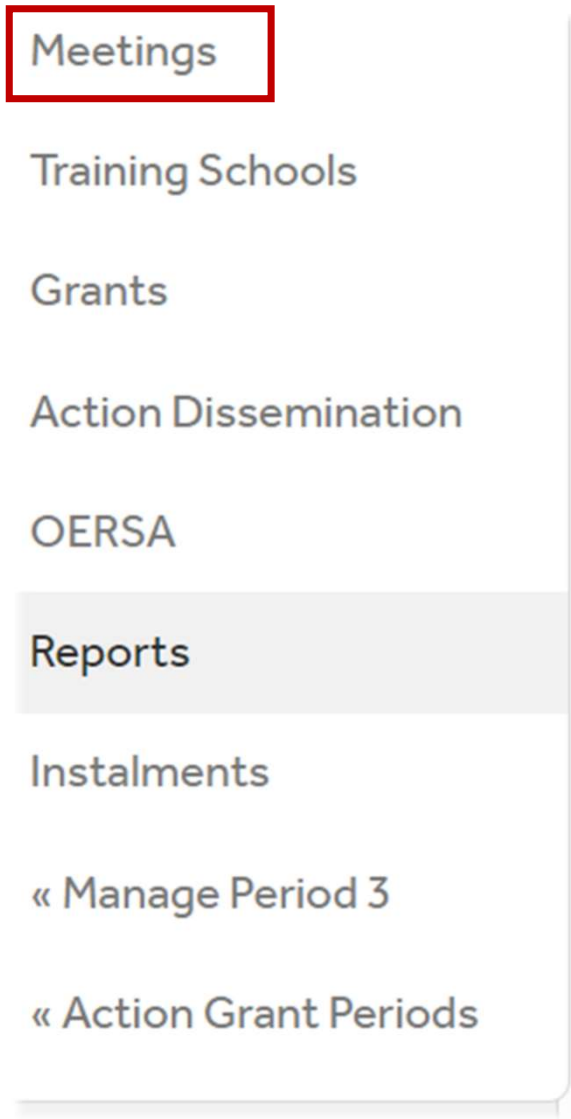
Grant Period 3: Highlights





ReNewPV Aknowledgment! This article/video/podcast/webinar/animation/presentation is based upon the work from COST Action *RenewPV CA21148*, supported by COST (European Cooperation in Science and Technology).

Grant Period 4:



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🔹 **16th European ReNewPV + Kesterite Workshop 2026**
🗓️ *June 17–19, 2026,* 📍 *Tallinn, Estonia*
👩‍💻 Host organizers / contacts: TalTech

🔹 **At least 2 WGs meetings**
🗓️ *2026,* 📍 Location
👩‍💻 Host organizers:

🔹 **Masterclasses: WG leaders**
➢ **Susan Schorr WG5 leader: X-Ray School at HZB**
🗓️ Tentative: 16.3. - 20. 3. 2026 📍 *Berlin*
➢ *More proposals*

🔹 **ReNewPV Exhibition Booth, EU PVSEC 2026**
🗓️ *September, 2026 ?,* 📍 Rotterdam, the Netherlands

LOCAL ORGANISER SUPPORT (LOS)

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- Local Organiser Support grant amount for face-to-face and hybrid events;

Total unique participants for the entire duration of the event	LOS grant for a COST face to face / hybrid event lasting:		
	1 day	2 days	3 days or more
Min.1–max. 25 participants	EUR 1.000	EUR 2.000	EUR 3.500
26-50 participants	EUR 2.000	EUR 4.000	EUR 6.000
51-100 participants	EUR 4.000	EUR 6.000	EUR 8.500
101-200 participants	EUR 6.000	EUR 8.500	EUR 10.000

- Local Organiser Support Grant amount for virtual events;

Total unique participants for the entire duration of the event	LOS grant for a COST virtual event lasting:		
	1-day event	2-day event	3-day event or more
Min.1–max. 25	EUR 350	EUR 700	EUR 900
26-50	EUR 900	EUR 1.500	EUR 3000
51-100	EUR 2.500	EUR 3.500	EUR 4.500
101-200	EUR 3.500	EUR 5.500	EUR 7.000

Grant Period 4:

- Meetings
- Training Schools
- Grants
- Action Dissemination
- OERSA
- Reports
- Instalments
- « Manage Period 3
- « Action Grant Periods

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🔹 **7th NEXTGEN International School & Workshop**
🗓️ *September 9–12, 2026* , 📍 *Palma, Mallorca, Spain*



Grant Period 4:

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Meetings

Training Schools

Grants

Action Dissemination

OERSA

Reports

Instalments

« Manage Period 3

« Action Grant Periods

- Organize over 15 Short-Term Scientific Missions (STSMs) to support knowledge and experience exchange among young researchers.
- Create reports, foster collaborative articles, joint project applications, and establish more academic and industry links



Meetings
Training Schools
Grants
Action Dissemination
OERSA
Reports
Instalments
« Manage Period 3
« Action Grant Periods

Dissemination and Communication Products

Overview

Dissemination and Communication Product	Title	Total Cost (EUR)
Scientific publication in Open Access	Joint Article	9,000.00
Multimedia content	Online platforms and video dissemination products	500.00
	Total (without VAT)	9,500.00

Meetings
Training Schools
Grants
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OERSA
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Instalments
« Manage Period 3
« Action Grant Periods

Other Expenses Related to Scientific Activities (OERSA)

Overview

Item	Total Cost (EUR)
Bank charges	600.00
Virtual communication and collaboration tools (digital networking)	269.78
Total	869.78

WG1 – Co-ordination, Communication, Dissemination

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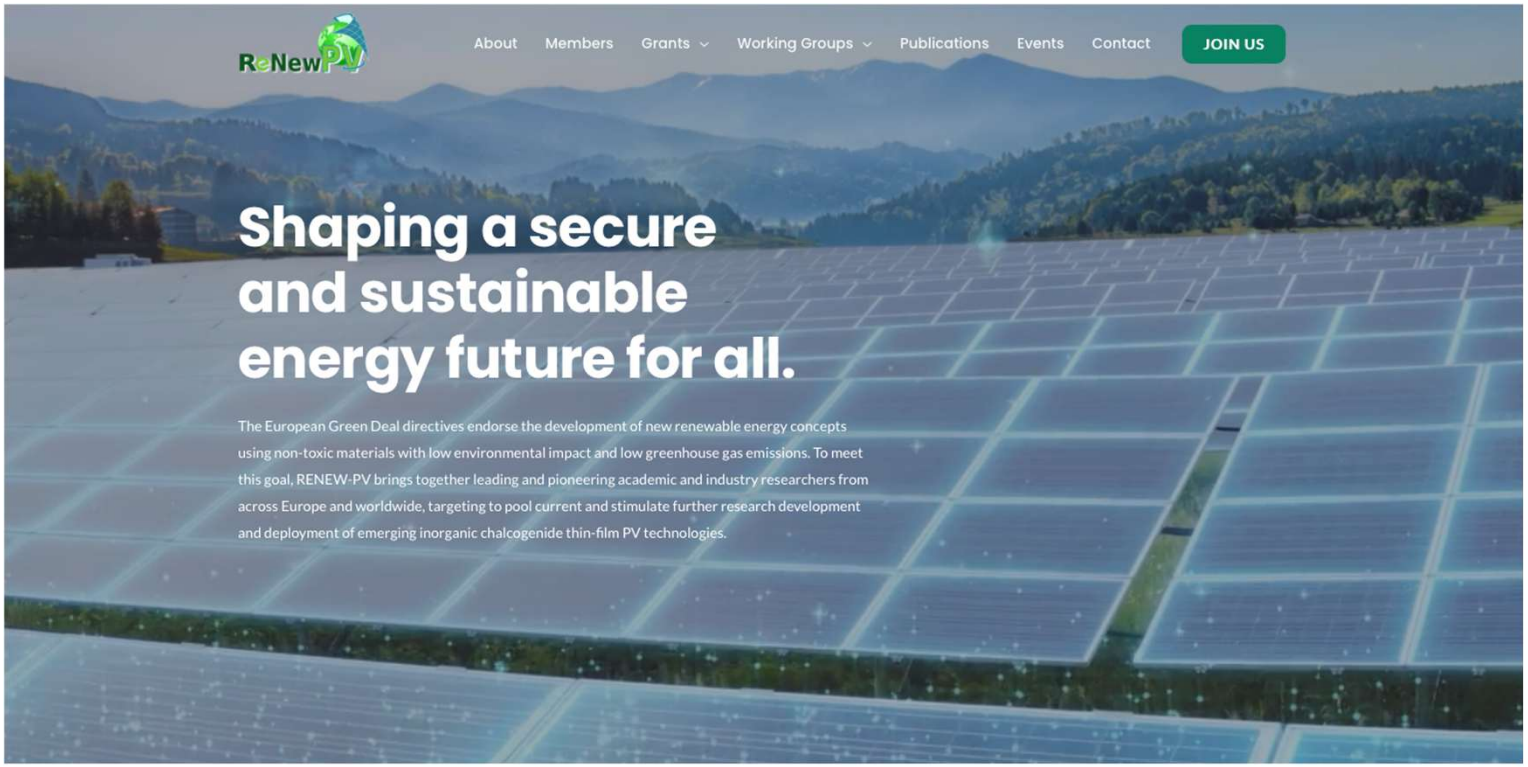
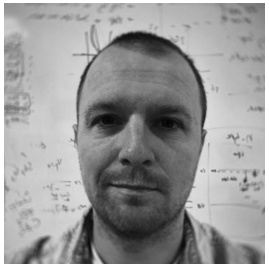


- https://renewpv.eu

If you have news or something for the calendar



Jon Major



Editorial
Yes / No





Phil Dale

María Bernechea



Editing

Stanko Tomic

https://renewpv.eu



Publish





@RenewPV_Network

- We rely on your news and events

23 Renew-PV Grants in GP3 (40.200 EUR)

	Nr of grants	Budget
Short Term Scientific Mission (STSM)	11	25.240 EUR
Dissemination Conference (DC)	3	5.500 EUR
Inclusiveness Target Countries (ITC) Conference	2	1.960 EUR
Young Researcher and Innovator Conference **(YRIC)**	7	7.500 EUR

Short Term Scientific Mission (STSM)

11 grants



- I–V Characterization of f SnS- and Sb2S3-based cell **for Indoor Applications** under Controlled Light Conditions
- Semi-transparent wide band gap **kesterite solar cells for indoor and tandem applications**
- **ZnSe as alternative buffe**r layer for **Cu2ZnSn(S,Se)4 solar cells**
- All-inorganic **antimony sulfide solar cells using CuInS2 quantum dots** for hole extraction and transport
- Advancements **in cadmium-free antimony sulfide solar cells**
- Optimisation of the performance of **spray-deposited Sb2S3 absorbing** thin films: Enhancing efficiency in photovoltaic devices
- **Sn-Doped Bi2S3 Crystals and Ingots**: Toward p-Type Absorbers for Thin-Film Solar Cells
- Advanced study of texture in **polycrystalline Se thin films:** Investigation of the effect of crystalline orientation in photovoltaic devices based on emerging chalcogenides
- **ZnO** interface layer for high efficiency **Sb2S3 solar cells**
- Analysis and comparison of **Sb2Se3** grown by evaporation and treated under pressure at different annealing temperatures in superstrate and substrate configuration
- Photoluminescence studies of **Sb2Se3 single crystals and thin films**

Conference grants (DC + ITC + YRIC)

12 grants



- 1 Invited talk and 1 Oral Talk at **2024 MRS Fall Meeting USA**
  https://www.mrs.org/meetings-events/annual-meetings/2024-mrs-fall-meeting
- 1 Keynote Talk and 6 Oral Talks at **MICROTHERM 2025 Poland**
  https://microtherm.dsod.pl/
- 1 Oral Talk and 1 Poster at **EMRS 2025 Spring Meeting France**
  https://www.european-mrs.com/meetings/2025-spring-meeting
- 1 Poster at **Artificial Intelligence for Adv. Materials 2025 Spain**
  https://ai4am.net/2025/index.php

Example: Reporting GP-3

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Obj. 1	Obj. 2	Obj. 3	Obj. 4	Obj. 5	Obj. 6	Obj. 7	Obj. 8	Obj. 9	Obj. 10	Obj. 11	Obj. 12	Obj. 13	Obj. 14	Obj. 15
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
▲														

MoU Objectives marked in grey need to be completed. The triangle indicates the current position.

MoU Objective 1

Objective description: Develop a competitive network consisting of specialized Working Groups (WGs) for development and evaluation of emerging chalcogenide materials for PV applications.

Objective type(s): ⚠ **This Action's MoU Objective Types have not yet been set.**

Please go to the MoU Objectives Overview panel and add at least one Objective Type to each MoU Objective.

Assessment

Level of achievement of MoU Objectives *

-- Please select an option --

- -- Please select an option --
- 76 - 100%
- 51 - 75%
- 26 - 50%
- 0 - 25%

Description of progress with achieving the MoU Objective *

p Words: 0

10 to 500 words. For technical reasons please use only "explicit" hyperlinks (e.g. http://www.cost.eu/) and not "implicit" links (e.g. link) to ensure accessibility of the link in PDF generated from this input.

Report status:

2 - Draft Action Chair

Checklist:

- ✓ Keywords
- ✗ MoU Objectives
- ✗ Deliverables
- ✗ Additional Outputs
  - ✗ Action Publications
  - ✗ Proposals / Projects
  - ✗ Other Outputs
- ✗ Impacts
- ✗ Dissemination
  - ✓ Meetings
  - ✗ Other Activities
  - ✗ Exploitation
- ✗ Other Matters
- ✗ Summary

Reporting GP-3: input example

Action Publications

Action Publications are direct results from COST Action activities. These can be codified knowledge, tacit knowledge, technology and societal applications.

Digital Object Identifiers (DOIs)

If you have one or more Digital Object Identifiers (DOIs) for your Publications, you can quickly add them to this report by clicking "Add Publication(s) by DOI" and entering them into the pop-up box.

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#	Description	Options
1	doi:10.1016/j.solmat.2022.112139 — Title Low processing temperatures explored in Sb2S3 solar cells by close-spaced sublimation and analysis of bulk and interface related defects Authors R. Krautmann; N. Spalatu ; R. Josepson; R. Nedzinskas; R. Kondrotas; R. Gržibovskis; A. Vembris; M. Krunks; I. Oja Acik DOI doi:10....	Edit | Delete

Add Publication(s) by DOI | Add Publication Manually | Continue to Proposals / Projects

ReNewPV: Continuity and Sustainability

❖ COST Innovators Grant

❖ ReNewPV 2026-2030

The COST Innovators Grant (CIG) is an initiative that aims to build bridges between research and take-up at market, product, service, or societal level. CIGs aim to enhance the pace and success of research breakthroughs and as such, offers ending Actions the possibility to create additional impact during the year after the end of the Action.

COST Innovators Grants have a duration of 12 months and benefit from the same networking activities available to COST Actions!



Eligibility and application process:

- The evaluation of CIG applications takes place once a year in two phases: the first one remotely, followed by face-to-face hearings for the top ranked applications.
- All relevant documents can be found on the Documents and Guidelines page of the COST website, under the COST Innovators Grant section.

https://www.cost.eu/cost-innovators-grant/

Why I Recommend COST Actions

- ✅ Expand your international network
- ✅ Increase research visibility
- ✅ Support young researchers and mobility
- ✅ Build leadership and management skills
- ✅ Improve competitiveness for EU funding
- ✅ Create lasting scientific partnerships

A lot of efforts? Yes.
Worth it? Absolutely!

