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*Light of the Future*

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Research and Innovation Strategy for  
Lviv Polytechnic National University  
dedicated to White-Emitting Organic Lighting Systems

Call

**HORIZON-WIDERA-2023-ACCESS-02-02**

Grant No.

**101155017**

Duration

**36 months · 2024–2027**

*International Information Day · "Twinning: General Conditions, Practical Information, Project Presentation" ·  
27.02.2026*

Presented by: DSc Tech., Prof. Iryna Yaremchuk, Coordinator · LPNU, Ukraine

## *"Light of the Future" — Pioneering Innovation in White-Emitting Organic Lighting*

HELIOS is dedicated to advancing cutting-edge research in ultra-efficient white-emitting organic lighting systems. Through interdisciplinary collaboration, knowledge transfer, and breakthrough technologies, the project aims to revolutionize sustainable lighting solutions for the future.

**36**

**Months**

2024–2027

**5**

**Partners**

UA · LT · LV · UK · BE

**9**

**Work Packages**

Research to Management

**50+**

**Researchers**

Directly involved

### Consortium Partners

**LPNU**

Lviv Polytechnic National University

Ukraine UA

**KTU**

Kaunas University of Technology

Lithuania LT

**RTU**

Riga Technical University

Latvia LV

**UoG**

University of Glasgow

UK GB

**INT**

Intelligentsia Consultants

Belgium BE

HELIOS focuses on pioneering research in white-emitting organic systems for next-generation solid-state lighting. The core scientific challenge: develop ultra-efficient, single-molecular white emitters.

## WOLEDs — White Organic Light-Emitting Diodes

- Single-molecular white emitters (RTP & TADF)
- Ultra-high luminous efficiency
- Flexible & transparent substrates
- Next-gen solid-state lighting
- 40–60% energy reduction vs. conventional LEDs

## WLEDs — Down-Converting White LEDs

- Organic phosphor down-converters
- Broad-spectrum white light output
- High color rendering index (CRI)
- Mercury-free, non-toxic materials
- Cost-effective manufacturing

*Bridging fundamental research with practical applications — cost-effective, high-performing, and environmentally sustainable lighting solutions.*

HELIOS is built around five interconnected strategic objectives aligned with EU Green Deal priorities and ERA goals.

## 01 Design & Synthesis

focuses on exploratory research to design ultra-efficient single-molecular white emitters for WOLEDs and WLEDs, aiming for a significant breakthrough in solid-state lighting cost-performance.

## 02 Transfer knowledge ER

centers on knowledge transfer between experienced researchers from LPNU and its Twinning partners)

## 03 Transfer knowledge ERs

aims to boost career opportunities for early-stage researchers of both LPNU and the Twinning partners

## 04 Build R&I Capacity

is geared towards refining LPNU's project management skills, specifically in proposal drafting and managing European R&D funding projects

## 05 Disseminate & Exploit

disseminate results through open-access publications, conferences, social media, and a project website. Generate IP and pathways to commercialisation with industry partners.

# Twinning Mechanism — How It Works

Twinning is a Horizon Europe instrument supporting research institutions in 'Widening' countries to strengthen their R&I capacity by partnering with leading European institutions.



## Key Twinning Requirements:

- ✓ Minimum 2 leading institutions from EU/associated countries
- ✓ Focus on ERA priority areas
- ✓ 3-year project (36 months)
- ✓ Widening country institution as coordinator

# Work Packages — Structure & Methodology

HELIOS is structured into 9 Work Packages, covering the full research-to-impact cycle from scientific discovery to policy engagement.

<b>WP1</b>	<b>Scientific Research</b> Core R&D on white organic emitters: synthesis, characterisation, device fabrication	<b>WP2</b>	<b>Staff Exchanges (ERs)</b> Secondments of Experienced Researchers between LPNU and partner institutions	<b>WP3</b>	<b>Staff Exchanges (ERs)</b> Secondments of Experienced Researchers between LPNU and partner institutions
<b>WP4</b>	<b>Research internships and trainings</b> Summer schools, workshops, seminars: scientific writing, presentation, methodology	<b>WP5</b>	<b>Research internships and trainings</b> Establishing a joint doctoral programme in organic semiconductor research	<b>WP6</b>	<b>Research Management</b> Prepare strategic plan for developing LPNU's research management and administration skills. Deliver Horizon Europe project management training
<b>WP7</b>	<b>Administration Skill Development</b> Deliver Horizon Europe proposal preparation training. Deliver Horizon Europe proposal writing workshops. Receive Intellectual Property training	<b>WP8</b>	<b>Dissemination, Exploitation, Communication and Outreach</b> Website, newsletters, podcast, social media, open-access publications	<b>WP9</b>	<b>Coordination</b> Project management, Steering Committee, EU reporting and financial oversight

# Key Activities — Scientific Exchanges & Secondments

HELIOS implements a rich programme of scientific secondments between partner institutions, enabling hands-on knowledge transfer in cutting-edge laboratory environments.

## **Kaunas (KTU), Lithuania**

Comprehensive characterisation of the new materials developed by UoG and Investigation of physical methods for improving the performance of monomolecular white RTP and TADF organic emitters.

## **Lviv (LPNU), Ukraine**

Develop and fabricate demonstrator devices based on the single-molecular white emitters, and evaluate their performance in terms of colour rendering, power efficiency, and lifetime

## **Riga (RTU), Latvia**

Deliver summer schools  
Participate to international conferences

## **Glasgow (UoG), UK**

Design and synthesise cutting-edge organic compounds with tunable white emission properties selected using theoretical models and experimental approaches

## **Luxembourg (INT), Luxembourg**

Training to prepare Horizon Europe proposals. Organising Horizon Europe proposal writing workshops. Training to manage Horizon Europe projects. Training for scientific dissemination and communication. Training for certification as EU project management professionals. Training for registration as technology transfer professionals.

HELIOS delivers a comprehensive training programme encompassing scientific skills, research methodology, and Horizon Europe project management.

## HELIOS Summer School

### Palanga, Lithuania

*Two practical modules delivered in-person to PhD students and young researchers:*

- How to Write a Scientific Paper  
by Prof. Peter Skabara (University of Glasgow)
- How to Make a Scientific Presentation  
by Dr. Audrius Bučinskas (KTU, Lithuania)

### Horizon Europe Project Management Training

Designed and delivered by INT (Intelligentsia Consultants). Enhanced LPNU administrative staff and researchers' knowledge on Horizon Europe rules, reporting requirements, and project management methodologies.

### Online Training for Twinning Applicants

Delivered December 2025 in support of the Horizon Europe Twinning Call 2026. HELIOS team actively shares project experience to help future applicants navigate the process.

### Institutional Mobility & High-Level Visits

LPNU conducted high-level institutional mobility to the University of Glasgow and KTU. UoG and KTU visit LPNU. Leadership exchanges to strengthen institutional cooperation and strategic alignment.

HELIOS is generating a growing body of scientific output, disseminated through open-access publications, conferences, and the project website.

## 15+

**Target Publications**

Peer-reviewed articles

## 6

**Conferences**

International participation

## 1

**Joint PhD Programme**

Established

## 10+

**Secondments**

Staff exchange visits

## International Conferences — HELIOS Representation

◆ RAD 2025 Conference

◆ Open Readings 2025 — Vilnius

◆ Bad Honnef Physics School

◆ NANOTECHNOLOGY 2025

◆ ECME 2025

◆ OP2025

## Open Science Commitment

All HELIOS publications are made available open-access. Data management plan in place. Research data deposited in open repositories. Results disseminated via project website ([helios-euproject.eu](http://helios-euproject.eu)), newsletter, podcast, social media and international conferences.

HELIOS takes a multi-channel approach to dissemination and communication, targeting scientific communities, industry, policy-makers and the general public.

## Project Website

helios-euproject.eu — news, events, publications, partner profiles, all project updates

## Annual Newsletter

First newsletter published Nov 2025 — project highlights, scientific results, team news

## Podcast Series

'HELIOS: New Light on Science' launched Feb 2026 — researcher interviews & science stories

## Presentation Video

Official HELIOS project video released Feb 2026 for broad audience engagement

## Public Events

Summer schools, workshops open to wider community — European Researchers' Night participation, visits to high schools

## Social Media

Active social media presence with updates on research progress and project milestones. Open lab events.

*HELIOS actively supports future Twinning applicants: Online Training for Horizon Europe Twinning Call 2026 delivered Dec 2025. New call now open (Jan 2026) — HELIOS team sharing experience.*

HELIOS is funded under the Twinning Green Deal call — every scientific and strategic activity is designed to contribute to EU climate and sustainability objectives.

## European Green Deal Priority: Sustainable & Smart Mobility · Energy Efficiency · Clean Energy

### Energy Efficiency

*EU 2030: -55% emissions*

White OLEDs consume 40–60% less energy than conventional lighting. HELIOS advances materials that directly enable this target.

### Zero Pollution

*Mercury-free lighting*

Organic materials are mercury-free and non-toxic. HELIOS provides clean-tech alternatives to fluorescent lamps in full alignment with EU RoHS directives.

### Circular Economy

*Sustainable materials*

Organic semiconductors enable bio-based, recyclable lighting solutions. HELIOS explores sustainable synthesis routes reducing environmental footprint.

### Climate Neutrality

*EU 2050 net-zero goal*

Widespread adoption of HELIOS WLED/WOLED technologies contributes measurably to reducing building sector carbon emissions.

### ERA & Widening

*Ukraine → European Research Area*

Twining Green Deal specifically targets widening countries. HELIOS integrates LPNU into EU R&I networks, reinforcing Eastern European scientific capacity.

### Green Innovation

*Clean tech leadership*

HELIOS generates IP, prototypes and scientific insights that can be commercialised by EU and Ukrainian lighting industry partners.

# Impact & Key Performance Indicators

HELIOS delivers measurable scientific, institutional, and societal impact across the full 36-month project timeline (2024–2027).

**5**

**Partners**

UA · LT · LV · UK · BE

**9**

**Work Packages**

Research to Management

**36**

**Months**

Project duration 2024–27

**10+**

**Secondments**

Staff exchange visits

**4+**

**Training Events**

Schools, workshops & seminars

**15+**

**Publications**

Target peer-reviewed papers

**1**

**Joint PhD**

Programme established

**50+**

**Researchers**

Directly involved

Key practical insights from the HELIOS Twinning project — shared to help future applicants to the Twinning Green Deal and other Widening calls.

## Proposal Preparation

- Build your consortium at least 6–9 months before submission deadline
- Contact National Contact Point early — administrative support is critical
- Use HELIOS as a model: clear WP structure, measurable KPIs

## Mobility & Exchanges

- Plan secondments 3–4 months ahead (visa logistics for non-EU researchers)
- Document all knowledge transfer activities immediately after visits
- Mix ERs and ESRs in exchange programme for maximum knowledge spread

## Scientific Strategy

- Define joint research questions from Day 1 with all partners
- Plan open science: data management plan before project start
- Balance fundamental research with practical/market relevance

## Project Management

- Dedicated project manager is essential — not optional
- Regular online coordination meetings (bi-weekly) keep all partners aligned
- Involve Intelligentsia-type consultant for EU admin expertise

 **Horizon Europe Twinning 2026 Call is now open — HELIOS team is available to share expertise!**

01 Check Eligibility	02 Find Partners	03 Design Your WPs	04 Write the Proposal	05 Submit & Implement
Institution must be in a Widening country (e.g. Ukraine, Baltic States). Identify R&I gap aligned with Green Deal or other ERA priorities.	Identify 2–3 leading EU/associated institutions with complementary expertise. ERANET, EARMA, NCP networks — attend info days like this one!	9 WPs recommended: research + mobility (ERs & ESRs) + training + PhD + management + dissemination + exploitation + coordination.	Use EU Funding & Tenders Portal. Focus on scientific excellence, Green Deal alignment, capacity building impact and measurable KPIs.	Submit via F&T Portal before deadline. After award: establish Project Office, kick-off meeting, begin secondments early in Year 1.


Resources: [ec.europa.eu/info/funding-tenders](https://ec.europa.eu/info/funding-tenders) · [helios-euproject.eu](https://helios-euproject.eu) · [ncp.gov.ua](https://ncp.gov.ua) (Ukraine NCP) · Contact: [iryna.y.yaremchuk@lpnu.ua](mailto:iryna.y.yaremchuk@lpnu.ua)

# HELIOS

*Light of the Future*

**Thank You for Your Attention!**  
**Questions & Discussion Welcome**

## Contact & Follow HELIOS

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