



HORIZON EUROPE

THE EU RESEARCH & INNOVATION PROGRAMME

2021 – 2027

Destination 4: Digital and emerging technologies for competitiveness and fit for the green deal – **Call 1**

Open: 1 December 2022

Deadline: 29 March 2023

[Info-Days for Horizon Europe Cluster 4 “Digital, Industry and Space” - 12-13-14 December 2022](#)

Research and
Innovation

Structure of Horizon Europe



HORIZON-CL4-2023-DIGITAL-EMERGING-01-11: Low TRL research in micro-electronics and integration technologies for industrial solutions

Expected Outcomes:

- Innovative semiconductor and micro-nanoelectronic **system design concepts** supporting very low energy consumption, integrated security, connectivity, sensing, actuating and embedded functions suited to mixed analogue/RF and digital circuits
- Alternative semiconductor **manufacturing process** technologies able to sustain in the mid- and long-terms the fast-paced evolution of device performance, miniaturisation and cost, while reducing environmental footprint
- Very advanced **packaging solutions** aiming at extreme miniaturisation and **integration of multiple functions** such as communication (RF, mmW or THz), sensing, actuating, power management and active/passive integration

Indicative budget: 35 million EUR

EU contribution per project: 3-4 million EUR

Type of Action: RIA

TRL: from 1-2 to 3-4

HORIZON-CL4-2023-DIGITAL-EMERGING-51: Pervasive photonics - Multi-technology Integration for digital infrastructure, sensors and internet of things

Expected Outcomes:

- **Improved key metrics for communications** (speed, power consumption, density) or for **sensing** (sensitivity, compactness, power consumption)
- **New** photonic-enabled **sensing functions** or **computing paradigms** enabling new systems architectures
- Vital contribution to Technological Sovereignty, Green Deal, Digital Transformation or Competitiveness which **demonstrates new functionality, higher performance and more cost-effective systems** across multiple application domains
- Maintaining **European technology leadership** in the face of strong global competition

Indicative budget:

18 million EUR

EU contribution per project:

3-5 million EUR

Type of Action:

RIA

TRL:

from 2 to 5 by the end of the project

HORIZON-CL4-2023-DIGITAL-EMERGING-01-53: Versatile light sources and systems as tools for manufacturing and medical application

Expected Outcomes:

- Increased **manufacturing productivity** or increased **quality and speed of diagnosis results**
- Increased **accuracy and/or reduced feature size in microelectronics production** including packaging for the integration of photonic and electronic functionalities on chips
- Increased **specificity of diagnosis** of human tissue, specific single cells, or molecular biomarkers in body liquids.

Indicative budget: 18 million EUR

EU contribution per project: 3-5 million EUR

Type of Action: RIA

TRL: from 2 to 5

HORIZON-CL4-2023-DIGITAL-EMERGING-01-57: Advanced imaging and sensing technologies

Expected Outcomes:

- The development of next generations **sensory systems** based on photonic technologies
- Technology leadership in autonomous vehicles, robots and sensory systems; Growth in several strategic industries such as medical devices, automotive, manufacturing, agriculture & food, security of large added value which are in Europe.
- Contribution to the Digital Green deal policy and/or to the technological sovereignty of Europe

Indicative budget: 20 million EUR

EU contribution per project: 5-7 million EUR

Type of Action: IA

TRL: from 3 to 6-7

Call: HORIZON-CL4-2023-DIGITAL-EMERGING-01

Flagship on Quantum Technologies: a Paradigm Shift

- HORIZON-CL4-2023-DIGITAL-EMERGING-01-40: **Quantum Photonic Integrated Circuit technologies (RIA)**
- HORIZON-CL4-2023-DIGITAL-EMERGING-01-41: **Investing in alternative quantum computation and simulation platform technologies (RIA)**
- HORIZON-CL4-2023-DIGITAL-EMERGING-01-50: **Next generation quantum sensing and metrology technologies (RIA)**
- HORIZON-CL4-2023-DIGITAL-EMERGING-01-43: **Framework Partnership Agreement for developing large-scale quantum Computing platform technologies (FPA)**

Graphene: Europe in the lead

- HORIZON-CL4-2023-DIGITAL-EMERGING-01-32: **Sustainable safe-by-design 2D materials technology (RIA)**
- HORIZON-CL4-2023-DIGITAL-EMERGING-01-33: **2D materials of tomorrow (RIA)**



Thank you

HorizonEU

<http://ec.europa.eu/horizon-europe>



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