ACTPHAST4.0
Enabling IoT opportunities with Photonics

BARCELONATECH · 2019
Photonics, the science of light

• Photonics is the technology of generating, controlling, and detecting light waves and photons (particles of light.)

• Taking advantage of all the electromagnetic spectrum

<table>
<thead>
<tr>
<th>Radiation Type</th>
<th>Frequency (Hz)</th>
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<tbody>
<tr>
<td>Buildings</td>
<td>$10^4$</td>
</tr>
<tr>
<td>Humans</td>
<td>$10^8$</td>
</tr>
<tr>
<td>Butterflies</td>
<td>$10^{12}$</td>
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<tr>
<td>Needle Point Protozoans</td>
<td>$10^{15}$</td>
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<tr>
<td>Molecules</td>
<td>$10^{16}$</td>
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<tr>
<td>Atoms</td>
<td>$10^{18}$</td>
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<tr>
<td>Atomic Nuclei</td>
<td>$10^{20}$</td>
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Photonics enables opportunities

Photonics is a Key Enabling Technology -> Allows the development of new applications when combined with other technologies.
Photonics in IoT

Communications
- Optical Fiber, LiFi, lasers, optical connectors, photodiodes, ...

Industry
- Industry 4.0

Automotive
- Advanced Driver Assistance Systems (ADAS)
- Connected Vehicle (V2V, V2I, V2D)

Environmental Monitoring
- Monitoring of air, water, soil, forests, snowfall levels, temperature, humidity, pollutants detection, ...
- Natural disaster early alarms, fisheries, smart cities, ...

Smart homes, offices, and gadgets
- Wearables, smart illumination systems (sales), ...
CD6: Shaping light to your needs

• Staff: 37 people
  – 10 researchers
  – 15 R+D Engineers
  – 8 PhD Students
  – 4 Management

• Multidisciplinar:
  – Photonics & Optics
  – Mechanics
  – Electronics
  – Software

• Site:
  – 1800 m2
  – Research labs
  – Mechanic & Electronic Workshops

Development of prototypes and turn-key instruments
ACTPHAST4.0

- A one-stop-shop photonics innovation incubator

- Integrating more than 200 top-experts from 25 institutes

- Objective: Accelerate the business of European SMEs to industry
How does ACTPHAST4.0 work?

1 - Registration of interest
A company must make a formal initial request for support using the online registration form on the ACTPHAST 4.0 website.

2 - Central Contact Point & Business Coach
All registrations of interest come through to the ACTPHAST 4.0 Central Contact Point (CCP) and are assigned to a Central Business Coach for rapid follow-up driven by the company’s business need.

3 - Technical Coordination Team
Once qualified as a “potential” innovation project, the details of the request are passed to the ACTPHAST 4.0 Technical Coordination Team (TCT) in order to identify and appoint the most suitable technical expert from the pool of up to 200 top photonics experts amongst the ACTPHAST 4.0 Partners, who offers the best match with the requirements of the company.

4 - Scouting Engagement
Once a suitable expert is appointed to a project, the next step is for that person plus the Business Coach to arrange for an in-depth discussion with the company about the potential project under NDA and to jointly submit a scouting report.

5 - Innovation Project Proposal
If the scouting report provides a positive recommendation to proceed with a full project proposal, and this recommendation is accepted by the TCT, then a suitable person from the ACTPHAST 4.0 Partners is selected and appointed to act as Project Leader to write the detailed proposal together with the Business Coach and the company.

6 - Evaluation Meeting
The ACTPHAST 4.0 TCT members meet once every two months to evaluate submitted Innovation Project Proposals and decide which proposals should be approved for support.

7 - Contract
Where an innovation project is approved for support, the next step is the process of preparing and signing the contract document between all of the relevant parties to the project.

8 - Project Execution & Follow-Up
Once the contract is signed, the project commences with a formal kick-off meeting between all of the parties and project team members. The Business Coach stays in continuous contact for post-project follow-up on impact and to make connections with the Photonics Pilot Lines and Venture Forum where appropriate for full commercial exploitation of the innovation.
Eligibility criteria & Support

• Any European company may be supported (significant R&D and production presence within the EU).

• Focused on SMEs (Large companies are welcome).

• An IPR agreement between the Company and the R+D is mandatory.

• ACTPHAST4.0 funds the costs of the tasks developed by the R+D partner:
  o SME’s: 100% subsidy for the first 30K€ and 75% subsidy for costs above 30K€
  o Large Companies: 50% subsidy
Head-up displays for avionics

hot embossing of free-form optics

fluid monitoring in harsh environments

optical magnetic field sensor

augmented reality

smart-pixel vision sensor

multicriteria fire detection

colloidal UV/SWIR quantum detectors for sensing
Further information:

https://actphast.eu/

https://www.cd6.upc.edu/partnership-actphast40.php
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