PRIMÉO lab spotlights research

Inaugurated at the Poitiers Futuroscope technopole area in September, PRIMÉO is a joint venture between University of Poitiers, the CNRS and Safran. This joint research lab, one of a kind in the field of photonics, is designed to accelerate technological transfer between fundamental research and industrial applications. Here are some explanations from Cyril Dupeyrat, an R&T Engineer at Safran Electronics & Defense.

What are the applications of photonics for Safran products?

"Photonics" is a rather general term covering all activities linked to the manipulation of light (see box). Safran Electronics & Defense focuses on its use in imaging systems: cameras, binoculars, telescopes, missile or drone guidance systems, etc. These products incorporate optical components like ports and lenses to direct the light flow towards a sensor. Our efforts are aimed at improving this flow to limit signal loss, including when there is little or no light. Photonics can help us in this respect, and this is one of the reasons the PRIMÉO lab was established.¹ Over time, other applications can be envisaged, especially for autonomous vehicles (night vision).

Why establish the laboratory?

PRIMÉO is the continuation of eight years of cooperation between Institut P' (a joint research unit between the CNRS and the University of Poitiers) and Safran. This lab will let us work together even more closely, draw up joint calls for proposals for obtaining regional, national or European funding, but also become more agile and efficient in dealing with our respective issues. For example, for Safran Electronics & Defense, this will facilitate access to physico-chemical means of characterization for materials at Institut P' with a view to analyzing potential problems on our production lines. In return, researchers from Institut P' will be able to use our industrial equipment to manufacture samples for their studies.

What are its areas of work?

Our cooperation covers a broad field ranging from academic research to the most applied problems. The main lab activities consist in developing processes for innovative surface treatment to not only enhance optical performance but also introduce new features such as self-cleanability (including anti-icing) or resistance to harsh environments. Another area pertains to the solid materials that make up these components. One example is replacing commonly used substrates by new materials with specific properties. Analysis of production issues is also an important aspect. Finally, early-stage research will make it possible to study the potential of photonics for more remote applications. This means that when the time comes, we will have the essential technological building blocks for processes and special materials.

¹ Partnership for Research and Innovation in Emerging Materials for Optronics

More

Did you say "photonics"?
Photonics in the broad sense is the science of light. Its name comes from the word "photon", which refers to an elementary particle of light. The term also refers to technologies making it possible to generate light (visible or invisible), manipulate it or detect it. As revolutionary as electronics in the 20th century, photonics has many industrial applications, such as optics, telecommunications (optical fiber, smartphones, etc.), sensors, lighting and satellite or medical imaging.

Read the press release Safran, the CNRS and the University of Poitiers create Priméo