



Press Release

## Photonics key to Virtual Worlds, new paper states

Brussels, Belgium

**A new position paper, published jointly by the European Technology Platform Photonics21 and the VR/AR Industrial Coalition, outlines how photonics plays a critical role in the future of Virtual Worlds and thus also Web 4.0, the next generation of the internet.**

Titled *‘Optics and Photonics Technologies Serving Virtual Worlds’*, the paper explains how photonic technologies are crucial for the devices which support Virtual Worlds, such as head-mounted displays, autostereoscopic displays and sensors. They are also essential for the needed improvements in content delivery within Virtual Worlds.

Virtual Worlds are immersive environments based on extended reality (XR) technology. They will be a key part of the transition to Web 4.0, according to the European Commission’s [strategy](#) released in July last year, which targets keeping the EU at the forefront of Web 4.0 development.

This motivated experts from the European photonics and XR communities to form a joint focus group and hold a workshop in November 2023. After identifying common needs and research priorities at the interface of these fields, the new position paper was produced.

The paper was unveiled at the first in-person meeting of the VR/AR Industrial Coalition, on 6 February 2024, in Brussels. The chair of the joint focus group, Prof. Peter Schelkens of Vrije Universiteit Brussels, commented:

*“Optic and photonic technologies are important building blocks for the display and sensing devices which support Virtual Worlds applications. Nonetheless, creating commercially viable solutions also requires intensive collaboration between the actors in the value chain focusing not solely on the research and design of the individual technological components, but also on the co-design between photonics and XR components, to facilitate sustainable solutions that meet user expectations. This poses significant challenges in terms of integration of the technological components and the associated production processes. Hence, bringing the Virtual Worlds and Photonics communities together is an important milestone in this process.”*

### Global XR Market

As highlighted in the paper, the global market for optics in virtual, augmented, and mixed reality (VR/AR/MR) – collectively referred to as extended reality (XR) – is projected to surge from its current valuation of EUR 550 million to an estimated EUR 4,7 billion by 2034.

Given this substantial growth and given that nearly 80% of the leading manufacturers of such devices are concentrated in Asia and the US, the paper recommends that Europe enhance its global competitiveness. It underscores the strategic importance of Europe’s proactive measures to position itself competitively in this rapidly expanding market.

You can find the position paper in full [here](#).