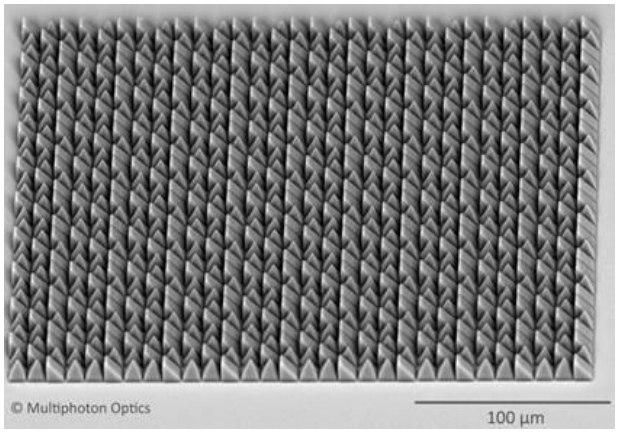
PHENOmenon, revolutionising user experience using groundbreaking optics

Advanced optics for the next generation of LED lighting, curved and flexible displays, transport infotainment, banknotes or solar cells.

Monday, 20 of July 2020.- AIMEN Technology Centre leads PHENOmenon project which will use new materials, laser technology, simulation and design tools to develop customised surface structures (at a very tiny scale) to fabricate high quality optics with enhanced properties like extreme light focusing, anti-fog properties, etc. with a writing speed of hundreds of cm2/min, thus boosting time and cost efficiency compared with existing technologies.

The next generation of efficient and flexible LED lighting solutions, curved and flexible displays, transport infotainment, document security or solar photovoltaic (PV) cells have something in common, advanced optics to master light. Nano-sized 3D structures can do the trick to develop new solutions, from holograms for anti-counterfeiting document security and virtual keypads to light management films for flexible or curved displays to be integrated everywhere, or microlens arrays for solar concentration.

Contribution to European photonics industry



The manufacturing solution developed in PHENOmenon will contribute to improve competitiveness of European photonics industry at large, generating growth and jobs, by creating new market opportunities for laser manufacturers and by enabling the manufacturing of innovative products for quality monitoring, information storage and fibre communication, diagnosis and treatment, LED lighting, displays and electronic devices, solar cells or security systems. Based on current markets status, when adopted by manufacturing industry, PHENOmenon could generate up to 4,500 high-quality jobs and €1 billion turnover for EU companies.

Thanks to PHENOmenon project, other industries in Europe will have the technology to design and manufacture products with radically improved or new functionalities to respond to European Society needs, i.e. better healthcare, cost-efficient energy production, better transport vehicles and infrastructures.

PHOTONICS PUBLIC PRIVATE PARTNERSHIP

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 780278. PHENOmenon project is an initiative of the Photonics Public Private Partnership.

PHENOmenon in citizens daily life

The benefits of the solution developed will also be reflected in the daily lives of citizens:

European consortium

PHENOmenon consortium comprises 12 entities from 5 EU countries. Focusing on the research, AIMEN (project coordinator, Spain), ICFO (Spain), CNRS (France) and IMT-A (France) will develop the new materials, laser manufacturing technology, simulation and design tools for on-demand production of advanced optics. EU companies Multiphoton Optics (Germany), FLUXIM (Switzerland) and CDA (Germany) will commercialise the manufacturing technology, optical calculation software and modelling solutions and provide manufacturing services to other companies, respectively.

Moreover, PHENOmenon relies on leading technology companies using the manufacturing solutions to create new products. THALES (France) will produce antifogging on-board cameras and improved PV concentrators for aerospace applications. FNMT (Spain) will integrate holographic features in banknotes and other documents. PSA (France) will create completely new car interiors using holographic control panels and curved/ flexible displays, as well as integrating antifogging coating in car lighting. FlexEnable (United Kingdom) will provide advanced concepts for low consumption LED. DesignLED (United Kingdom) will provide a innovative backlight unit for high quality imaging in curved/ flexible displays.

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Details

Title: Laser manufacturing of 3D nano structured optics using advanced photochemistry
Partners: 12
Countries: 5
EU Funding: 3.9M€
Start Date: 01/01/2018
Project Duration: 36 months
Project Consortium:

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