Press Release

FABulous Project started in December 2022 with the objective of fabricating 3D metasurfaces to enable the next generation of high efficiency optical products

- **The FABulous project is an initiative that will develop an industrial surface 'coating' technology that exploits breakthroughs in multiphoton lithography and process modelling to manufacture high resolution 3D metasurfaces at a throughput viable for series production.**

- **In the scope of the Project, functionalization processes and new design methodologies will be developed and integrated in an advanced manufacturing platform, which will be demonstrated through the design and fabrication on components.**

- **The project has a total budget of almost 5,5 million euros funded within the programme Horizon Europe, and will be developed through the cooperation of 11 partners from 6 European countries.**

Monday, 19th of December 2022.- The FABulous Project, which stands for "FABrication of 3D metasurfaces to enable the next generation of high efficiency optical products", is an initiative led by AIMEN that will develop an industrial surface 'coating' technology that exploits breakthroughs in multiphoton lithography and process modelling to manufacture high resolution 3D metasurfaces at a throughput viable for series production. The project has a total budget of almost 5,5 million euros funded within the programme Horizon Europe.

These metasurfaces will be capable of manipulating light with unprecedented flexibility and will open the possibility of designing and manufacturing smaller, lighter, and more environmentally friendly products, through the replacement of bulky components and/or the chemical coatings currently used to enhance the efficiency and performance of optical products.

For this purpose, the project will explore novel methods for rapid (>10cm^2/min) microfabrication of high-resolution (smaller than 200nm) 3D structures with a quality assurance and control system, as well as the development of new production tools to optimize the design and integration of the metasurfaces into functional products. The application of the technology and its potential to contribute to the design and manufacturing of more sustainable and circular European goods will be demonstrated in a series of optical components lenses, light pipes, and micro-optics arrays.

This project entails the development of a laser-based surface functionalization process to produce custom optical metasurfaces on flat, flexible, curved, aspherical and free-form substrates, as well as the development of new design technology co-optimization methodologies to improve their performance and reduce their environmental footprint.

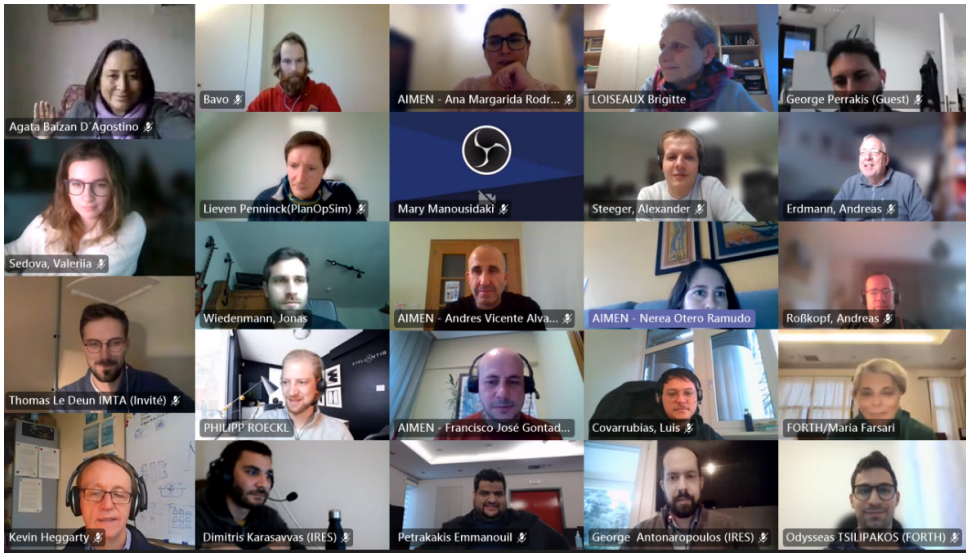
Within the project the surface functionalization process and design tools will be integrated into an advanced manufacturing platform to demonstrate high throughput fabrication of optical metasurfaces on non-planar surfaces, with the full flexibility of direct writing.

Additionally, within FABulous project a demonstration will be made of the design and fabrication of sensors, automotive day time running lights (DRL) and solar power generator with higher efficiency and reduced environmental footprints (at least 20% less carbon footprint in the whole lifetime).

Finally, Fabulous will establish viable strategies and European supply chain(s) to speed-up the sustainable manufacturing of metasurfaces at large scale and at an acceptable price (<0.20 €/cm^2 manufacturing cost) for the target markets.

The FABulous consortium

The FABulous consortium brings together world-leading experienced experts. Industrial leaders are joining forces with influential academics to ensure that the research efforts translate into market-ready and industry-aligned technologies. The project's consortium is composed by 11 partners from 6 European countries, namely: AIMEN (Spain), MULTIPHOTON OPTICS GMBH (Germany), FRAUNHOFER GESELLSCHAFT ZUR FORDERUNG DER ANGEWANDTEN FORSCHUNG EV (Germany), INSTITUT MINES-TELECOM (France), THALES (France), PSA AUTOMOBILES SA (France), IDRYMA TECHNOLOGIAS KAI EREVNAS (Greece), INNOVATION IN RESEARCH & ENGINEERING SOLUTIONS (Belgium), PLANOPSIM NV (Belgium), FICOSA ADAS, S.L. (Spain), MODUS RESEARCH AND INNOVATION LIMITED (United Kingdom).



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