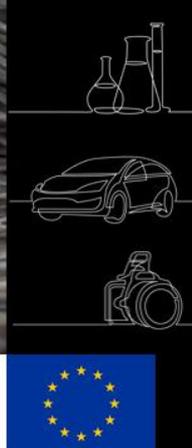


sub-wavelength nanostructures fabricated on a pilot manufacturing line using self-assembling block copolymers

SUNPILOT



Q2-2019 Newsletter: M18 meeting and World of Photonics

30 June 2019

April-June 2019 was a busy period for SUN-PILOT partners. Most notably the M18 General Assembly of the Project Management Board was held at the Laboratoire de chimie des Polymères Organiques (LCPO), Université Bordeaux.

With presentations on polymer design, initial results of etching

optical and metal substrates, and Life Cycle Assessments, this proved an enlightening gathering for all Partners.

Regards dissemination activities, David Nugent (Elucidare Limited) discussed SUN-PILOT objectives with attendees at the World of Photonics congress in Munich.

Funded through the European Union's Horizon 2020 research and innovation programme, SUN-PILOT will develop pilot-scale industrial processes for producing nanotextured products. Our primary commercial applications are in the optics and automotive industries.

Progress reports were presented by each Work Package leader at the M18 meeting.

LCPO reported on steps towards the formulation and synthesis of novel high molecular weight BCPs.

FHG-IAP reported on scale-up results and the design of an industrial BCP reactor. The presentation included cost estimates for various industrialisation options.

MRT updated on its work on polyfluorinated additives, chemicals used to assist with the release of injection moulded plastics from nanotextured moulds.

lcpo.fr microresist.de iap.fraunhofer.de



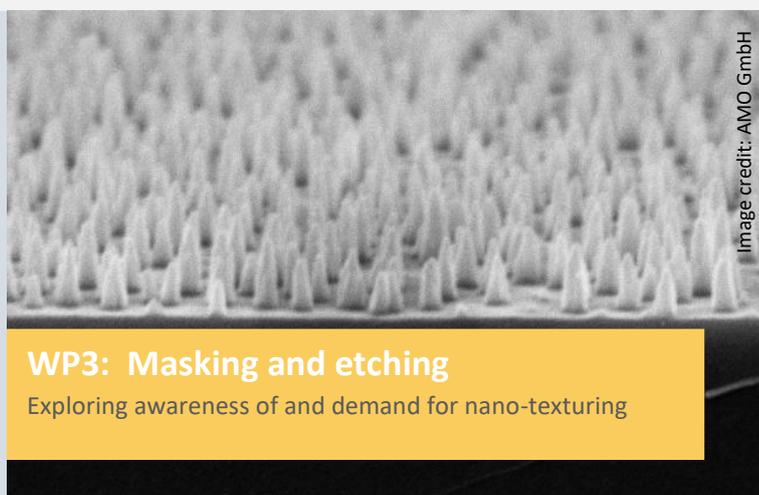
WP2: Materials

Review of activities on polymers and additives research

TCD AMBER reported on the masking of optical materials (BK7 curved and flat fused silica) and stainless steel. Options for metal inclusion and metal/oxide mask uniformity were discussed.

AMO presented initial results on etching optical and steel surfaces. Pattern transfer and etch depth was obtained on fused silica. Strategies for improving the pattern transfer to BK7 and stainless steel were discussed.

ambercentre.ie amo.de



WP3: Masking and etching

Exploring awareness of and demand for nano-texturing

For more information contact: info@sunpilot.eu

 sunpilot.eu



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 760915



Irish Precision Optics presented nanostructure designs optimised for UV lasers. Preliminary measurements of optical transmission vs. wavelength were also covered. Spectral regions exhibiting improved optical transmission compared to non-processed samples support the case that anti-reflective sub-wavelength nanostructures have been formed on the substrate using the BCP masks and etch.

Tecnalia presented target nanostructures for antireflective surfaces and features for structured colours. Grupo Antolin discussed methods for improving mould release using tooling surface temperature controls.

irishprecisionoptics.com tecnalia.es grupoantolin.com



WP4: Process Optimisation

Preliminary transmission results confirm AR nanotexturing

Vertech Group gave an overview of Life Cycle Assessment and Life Cycle Cost preparatory work. Methodologies and defined functional units were discussed, together with impact categories for forthcoming environmental studies. Information on benchmark technologies from optics and automotive strands were provided by partners Irish Precision Optics and Grupo Antolin.

vertech-group.com



WP5: Life Cycle Analysis

SUN-PILOT warmly hosted by LCPO at Bordeaux University

The M18 meeting was hosted by Professor Hadziioannou and his team at LCPO. Since its creation in 1985, LCPO has focussed its academic research on polymerization mechanisms and macromolecular engineering.

Current projects are oriented towards the design of functional high value-added polymers and the study of their macroscopic properties for target applications, particularly the domains of life sciences, energy and technology.

Green and biomimetic synthetic approaches together with the understanding of structure/properties relationships are presenting the core of LCPO scientific strategy.

lcpo.fr



M18 General Assembly

SUN-PILOT warmly hosted by LCPO at Bordeaux University



SUN-PILOT Partners were delighted to welcome Dr Mark Dineen to the External Expert Advisory Board (EEAB). Mark is Technical Marketing Manager at Oxford Instruments Plasma Technology, a provider of systems supporting a wide variety of etch and deposition applications. Mark completed his PhD at Cardiff University where he studied GaN LED plasma etching.

Also joining the EEAB is Prof. Dr. Stephan Förster, a soft matter and neutron scattering expert at the Jülich Centre for Neutron Science.

oxinst.com fz-juelich.de



Image credit: Oxford Instruments

Dineen and Förster join advisory board

Delighted to welcome world experts to SUN-PILOT project

Held once every two years the World of Photonics is the largest gathering of optical component vendors in Europe. David Nugent (Elucidare Limited) visited the tradeshow to meet with optical component vendors, distributors and system integrators.

The good news is that almost every component vendor and distributor was aware of the principles of nanotexturing and its role as a robust alternative to dielectric AR coatings. Overall it appears the optics industry is ready to embrace nanotexturing when offered at industrial scale and price.

sunpilot.eu



Nanotextured freeform optics

Functional surfaces created through textured moulds