

Partners



AIMEN Technology Centre
www.aimen.es



Universitat Politècnica de Catalunya (UPC)
www.upc.edu



PROMOLDING
www.promolding.nl



HYBTRONICS MICROSYSTEMS
www.hybtronics.com



MONDRAGON ASSEMBLY
www.mondragon-assembly.com



FAGOR AUTOMATION

FAGOR AUTOMATION
www.fagorautomation.com



ADAMA INNOVATIONS
www.adama.tips



FLEXENABLE
www.flexenable.com



RECENTDT
www.recentdt.at/en



FRAUNHOFER IWU
www.iwu.fraunhofer.de



CeIT-IK4
www.ceit.es



SNELLOPTICS
www.snelloptics.com



Flexible Optical Injection Moulding of optoelectronic devices

Project Coordinator:



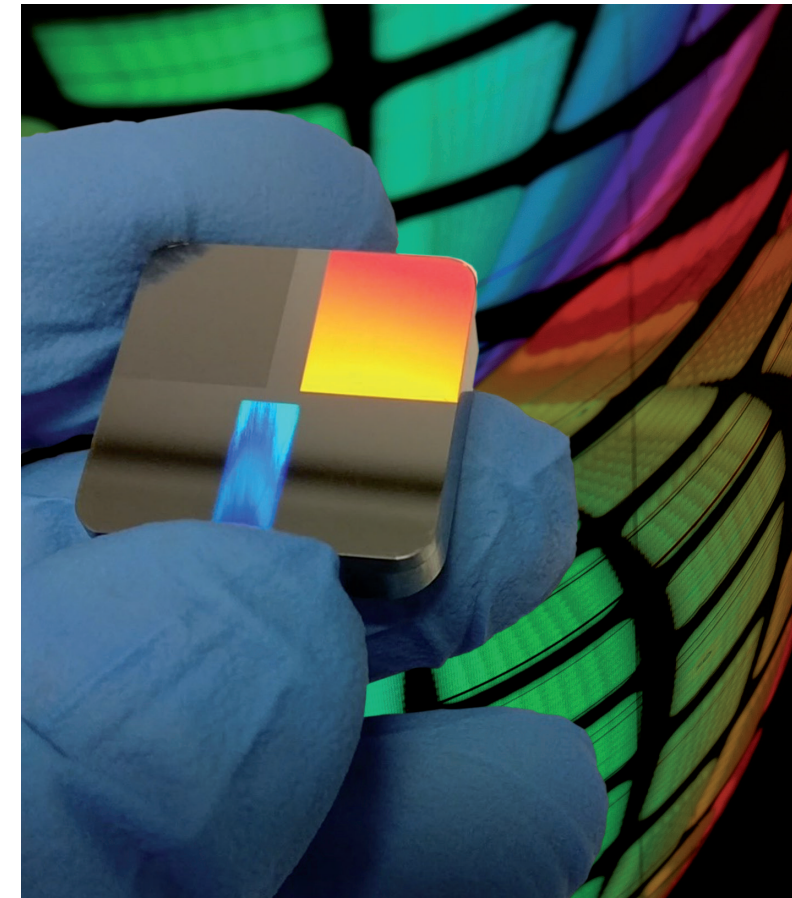
Coordinator office contact:

Nerea Otero
notero@aimen.es
Phone: +34 986 344 000

www.floimproject.eu



Flexible Optical Injection Moulding of optoelectronic devices



FLOIM - MCG08019

www.floimproject.eu



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 820661.

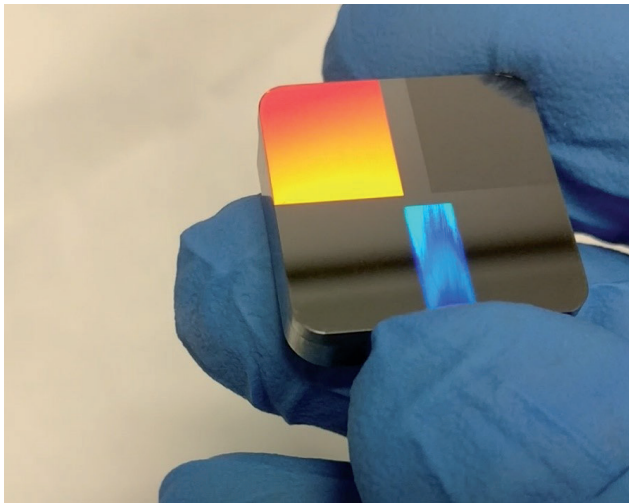
1 Year of FLOIM

FLOIM project started one year ago. During these past 12 months, efforts were focused on 2 different subjects:

- Developing the key technologies that will allow manufacturing moulds with structures in the micro and nanoscale, which will transfer optical functionalities to the injected materials.
- Developing systems to guarantee a robust quality control of the manufactured parts.

Key manufacturing technologies

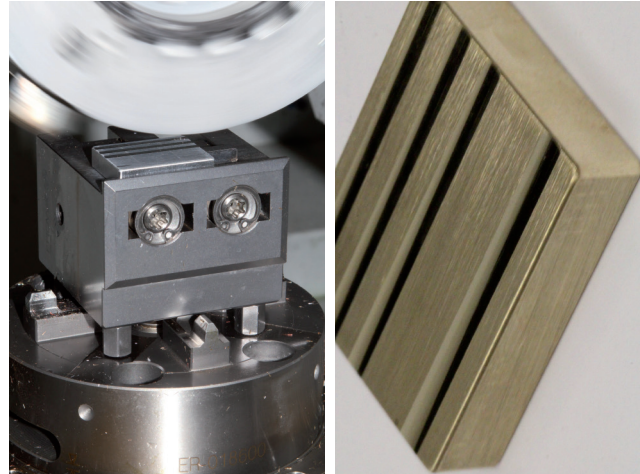
Laser technologies are used for the development of the final demonstrators of the FLOIM project. This clean and efficient technology allows for the processing of surfaces avoiding the use of other chemical or physical additives. Laser machining is being studied at CEIT, while two-photon photopolymerization is investigated at AIMEN as means to generate structures on mould inserts.



"Laser micro/nanostructured mould insert processed at Ceit with a high repetition femtosecond laser".

Fhg-IWU has been investigating shape accuracy and surface quality when mechanically structuring the mould inserts with cylindrical lens geometries.

First, potential materials for the moulding of optical components were procured, mould inserts produced, and finally machining tests were carried out.



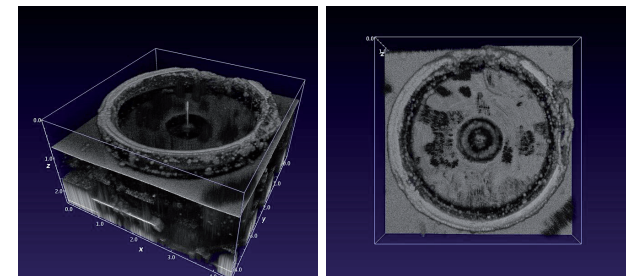
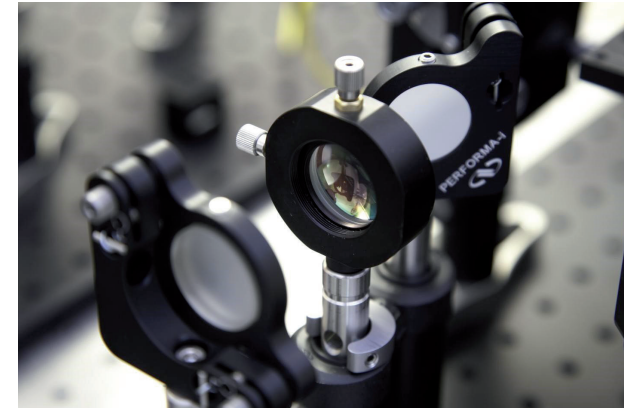
"Brass insert micromachined at Fhg-IWU with a Kugler MM3 micromachining center".

Control systems

In FLOIM project, RECENDT is responsible for the development of fast, non-destructive testing methods to control the process quality and performance. Two different measurement systems based on OCT (optical coherence tomography) will be engineered:

- In-mould OCT for the monitoring of the alignment of the active optical components in the mould.
- Development of an OCT setup combining galvoscaners and positioners for the quality control of manufactured parts directly after the injection moulding process.

In the first year of the project, RECENDT laid the foundations for the systems to be developed, worked on the definition of the system specification and analysed the first available test samples.



"Laboratory setup for OCT measurement at RECENDT and measured samples".

For validating the optical and electrical behavior of the final manufactured parts, Mondragon Assembly has designed a quality control station for a Fibre Optical Transmissor demonstrator. A prototype has been built and its electrical behavior validated.

