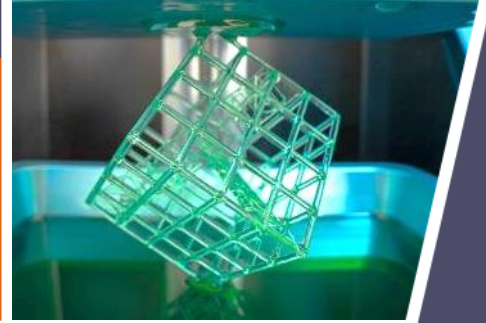


# 3D micro-printing by 2D/3D image projections inside photo-resins



## RÉFÉRENCE

HOLO3D [D2640]

## MOTS-CLÉS

MICROSTEREOLITHOGRAPHY,  
PHOTOSENSITIVE RESINS, 3D PRINTING,  
ADDITIVE MANUFACTURING



## APPLICATIONS

Markets for which there are miniaturization issues :

- Health : Point of care, Microfluidics, Lab on Chip
- Photonics : Lighting, display, imaging, waveguides,
- Security : Anticounterfeiting, traceability
- Microelectronics : MEMS, printed circuits...



## TARGET MARKETS

All 3D printing machines manufacturers,  
Systems Integrators, suppliers of  
photosensitive resins, parts manufacturers

## Technology readiness level

TRL 3 → TRL 5 en 2021



## INTELLECTUAL PROPERTY

Patent pending



## LABORATORY

Laboratoire de chimie  
CNRS/ENS Lyon/UCBL  
IMT-A

## DESCRIPTION

3D printing by photopolymerization is growing, and is now industrializing. Only the slow technology of two-photon polymerization has addressed the micron and sub-micron XYZ resolutions needed for many applications.

Two French research laboratories have developed a photo-projector printer dedicated to real-time 3D micro-structuration on cm<sup>2</sup> surfaces or in mm<sup>3</sup> volumes. Its unique technology is based on image projections inside ultrasensitive nonlinear photoresins. The 3D light exposure can either be generated by the scanning of 2D slice images or by the direct 3D holographic image of the target.

It uses conventional components, but with an unique light exposure strategy that maintains good Z resolution (< 10 μm).

## COMPETITIVE AVANTAGES

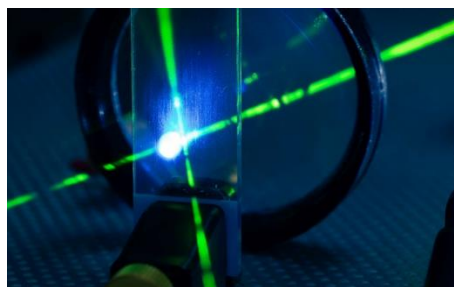
- Possibility of making fragile objects without reinforcements
- Compatible with all types of transparent resins: standard liquid resins but also viscous or solid
- Possibility of making complex 3D object shapes
- Reduction of manufacturing steps to obtain a finished object
- No resolution constraints compared to other technologies
- Implementation of conventional components
- Rapid manufacturing

## LEVEL OF DEVELOPMENT

- Experimental benches for polymerization with 2D and 3D holographic projection has been developed
- 3D light exposures are produced.
- The development of 3D production processes are in their starting stage.

## PARTNERSHIP

PULSALYS is looking for industrial partners for the commercialization of the technology....



## CONTACT

David VITALE  
+33(0)4 26 23 56 60  
[david.vitale@pulsalys.fr](mailto:david.vitale@pulsalys.fr)

## FIND OUT OUR OPPORTUNITIES

<https://www.pulsalys.fr/article/nos-offres-de-technologie>

PULSALYS SATT LYON ST ETIENNE :  
47 bd du 11 novembre 1918 - CS 90170  
69625 Villeurbanne Cedex  
FRANCE



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