

SCALABLE FABRICATION OF NANOSTRUCTURES BY **SOFT-LITHOGRAPHY**

NANOSTRUCTURING OF WIDE RANGE OF MATERIALS

VERSATILE AND LARGE AREA FABRICATION PROCESS

**INSTITUT DE CIÈNCIA DE MATERIALS DE
BARCELONA (ICMAB-CSIC)**

Scalable fabrication of nanostructures by soft-lithography



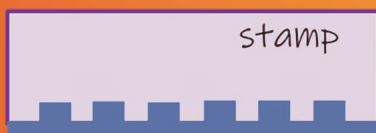
Traditional nanofabrication methods are expensive, require costly equipment and are limited to small areas. At ICMAB, we use a nanofabrication technique in which we use printing stamps with pre-patterned motifs to replicate the designs into any desired surface or material.



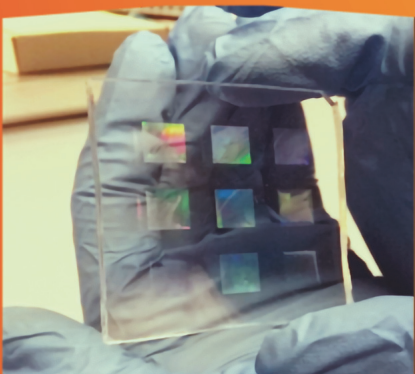
Our approach based in soft nanoimprinting lithography does not involve clean-room processing nor complex optical set ups and it is compatible with a wide variety of materials (polymers, colloids, semiconductors, etc.)

The nanofabrication process in a nutshell:

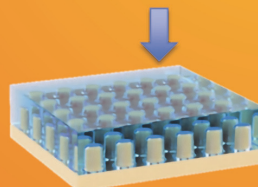
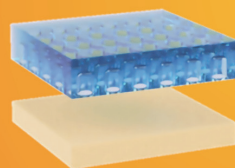
1 The PDMS stamp



Master (original)

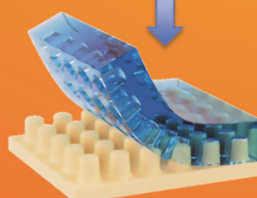


2 Printing process



Apply:

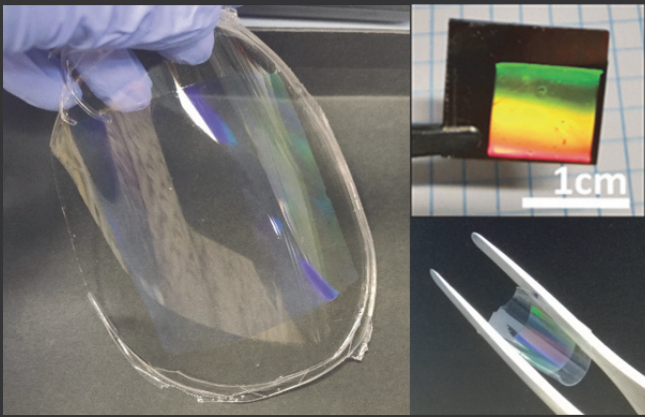
- Pressure, Temperature
- UV light Solvents,...



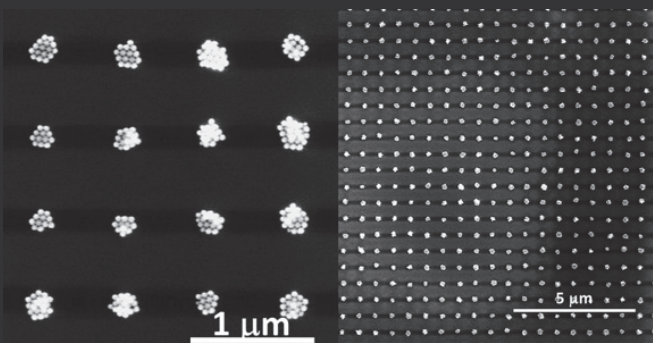
3 The replica



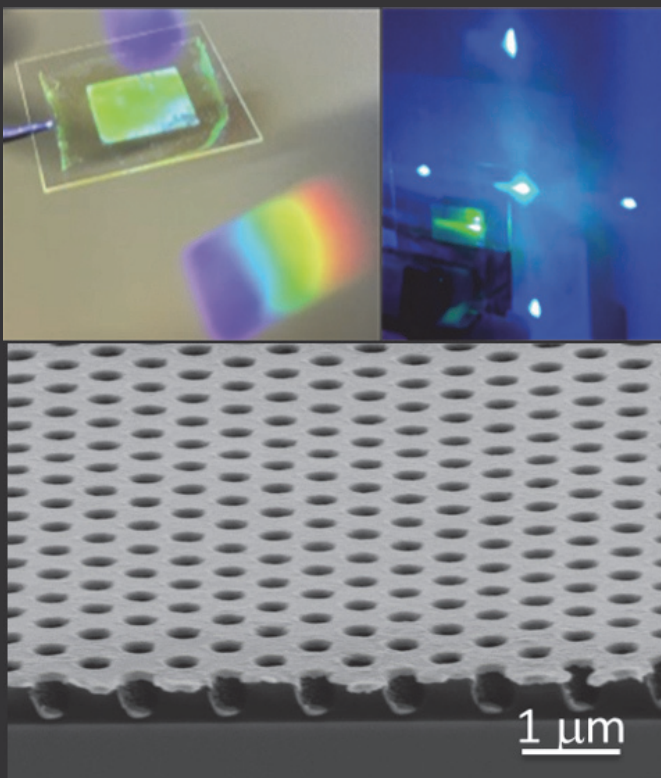
Applications



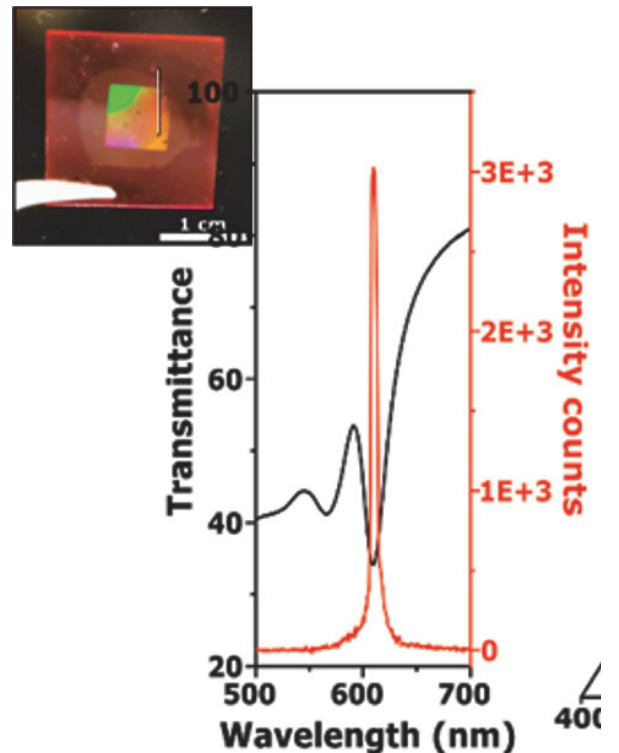
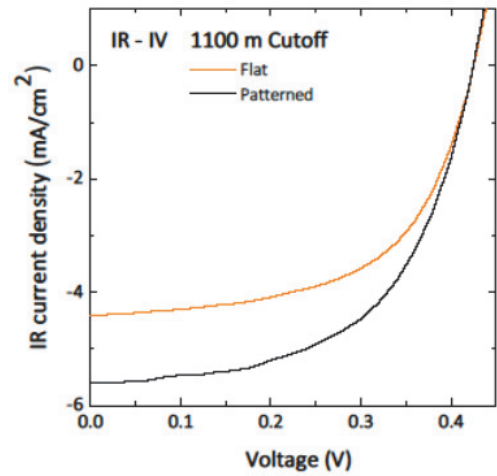
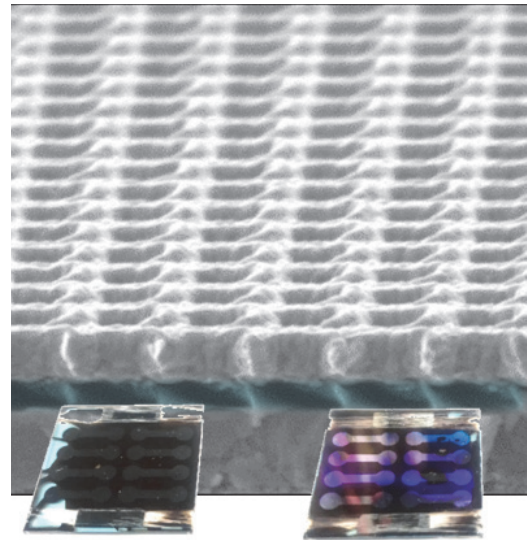
Large area optical coatings



Colloid based metasurfaces

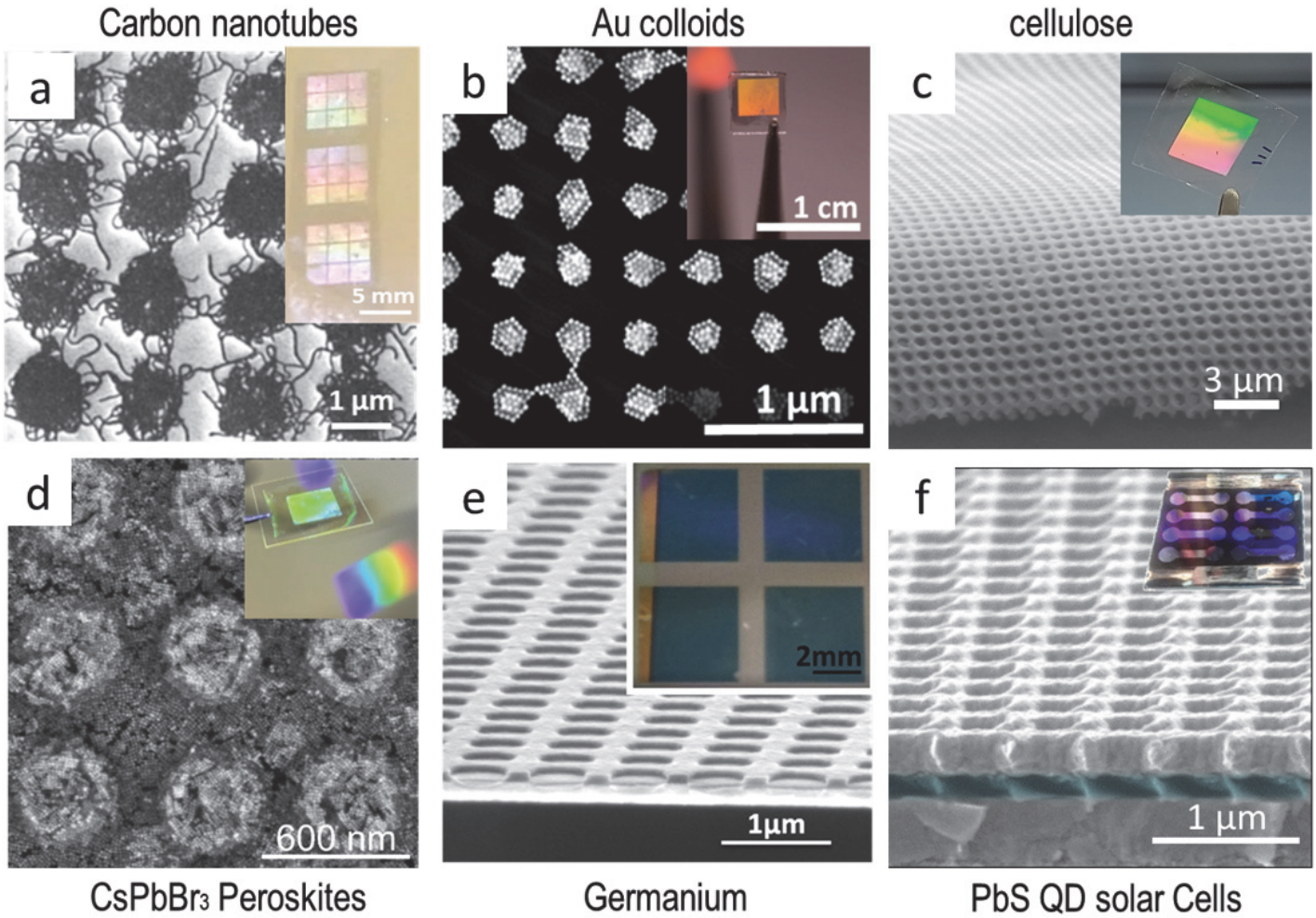


Metasurfaces and more



Enhanced Light absorption

Our technique enables imparting optical properties to many materials, such as:



a) Dore et al. Small 2020 In press, b) Matricardi et al. ACS Nano 2019, c) Espinha et al. Nature Photonics 2018, d) Vila-Liarte et al. Angew Chem. 2020, e) Molet et al. Adv. Mater. 2018, f) Kim & Molet et al. Adv. Mater. 2019



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Nanostructures made

EASY ””

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