Seminar Announcement

Title: Light Responsive Polymeric Structures

Speaker: Prof. Emiliano Descrovi
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Date and place:
Friday, June 14th, 11 am, in CNR-NANO Seminar room 3rd floor, Dpt. Physics, Informatics and Mathematics, via G. Campi 213/A

Abstract:
Some opportunities of using light-responsive polymeric architectures in optics-related applications will be presented, including the biological domain. Several strategies will be shown, aiming at advancing the synthesis and fabrication technology for 2D/3D patterning of functional light-responsive polymers in the form of biocompatible resins, and elastomers exhibiting reversible mechanical variations (e.g. in morphology) when properly irradiated.
In the context of biological applications, light-responsive smart substrates are introduced to perturb growth and migration of living cells. It is known that cell-substrate interactions modulate cell behavior and can induce significant phenotypic changes. Here, an operative platform for implementing a light-driven, real-time perturbation of small to medium sized cancer cell colonies seeded on light-responsive substrates is presented.
On a larger scale, a new type of light-responsive nanocomposite is presented, whose mechanical deformation is fully driven by the polarization of an incident radiation. A millimeter-sized membrane actuator made of this amorphous material is demonstrated to be actuatable in any arbitrary direction, as ruled by the polarization state of the illumination.