

Dyes in light activated 3D printing: beyond the precision

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Abstract

In the near future, 3D printing is predicted to revolutionize the production process, exceeding mass production and economy of scale, and thus our life. Nevertheless, the most of the people still see it as a way for having fun or, in the best case, as a technology for niche applications. One of the main reasons that still prevents the complete development of 3D printing is the relative limited number of printable materials, which restricts the available applications fields. In particular in light-based 3D printing technologies, such as SLA and DLP, the few available materials limit the use of these technologies to rapid prototyping, jewelry, hobby and few others. The most common approach for increasing the materials' properties consists in playing with the monomers/oligomers or adding fillers. However, other strategies could be undertaken for widening the palette of functional printable materials. Here we present how an engineered use of the dye in the printable formulation, which is commonly used for limiting light penetration and thus for improving the printing precision, could be employed for imparting new functional properties to the printed objects, obtaining functional devices.