New avenues for multi-material 3D printing in light-based additive manufacturing

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Light-based additive manufacturing (3D printing) typically relies on radical photopolymerization utilizing (meth)acrylates or thiol-ene monomers. Thus, printing of functional polymers is usually based on mimicking conventional functional polymers. In contrast to this mimicry approach, we utilize the largely untapped potential of diversifying the printing parameters such as temperature, light intensity and light colour to. This allows unprecedented diversity in the chemistries utilized for 3D printing and even unlocks multi-material 3D printing within one step, for which first examples will be presented.