

Photopolymerization: state of the art and perspectives :

Photopolymerization technology has been developing steadily benefiting from the characteristics of spatial and temporal controllability, environmental protection, and efficient processes. Light-emitting diodes (LEDs) have been used as irradiation sources in photopolymerization increasingly due to their higher safety, lower energy consumption and longer emission wavelength than the conventional mercury lamps. Nowadays, LEDs are almost the primary choice to carry out photopolymerization experiments. In this work, new photoinitiating systems for radical, cationic or hybrid polymerization will be presented for different spectral ranges: near UV, visible, Near Infrared. This work will be extended to photopolyaddition processes. Some applications for coatings, 3D printing and photocomposites will be provided. The mechanical properties of the generated polymers/composites will be also investigated.