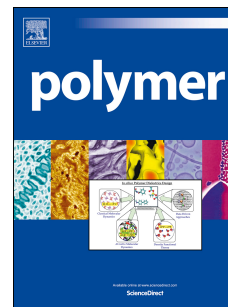


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Functional Siloxanes with Photo-Activated, Simultaneous Chain Extension and Crosslinking for Lithography-Based 3D Printing

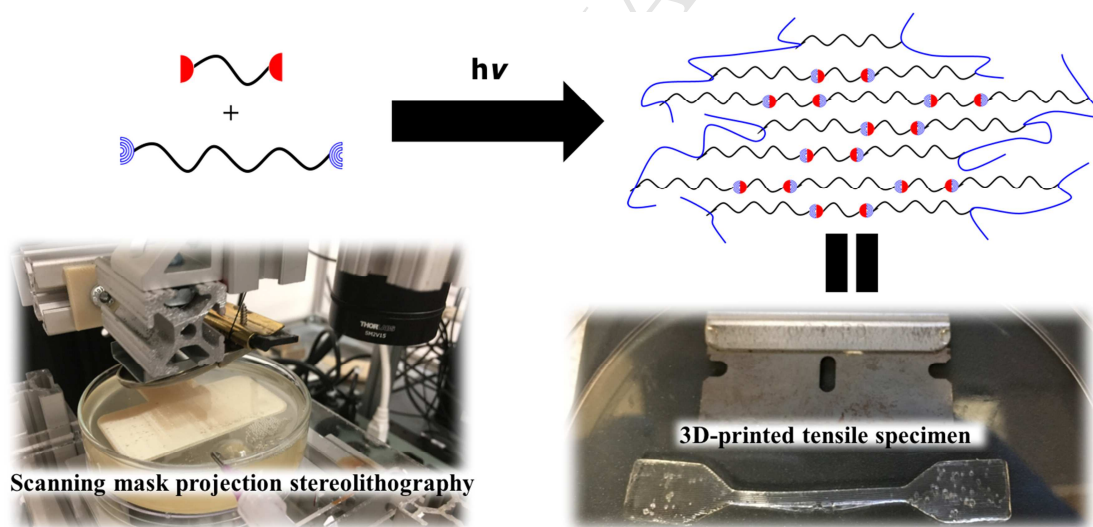
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Keywords: poly(dimethylsiloxane); PDMS; 3D printing; additive manufacturing; vat photopolymerization; stereolithography; thiol-ene; photopolymer; elastomer



Highlights:

- A vat photopolymerization additive manufacturing (3DP) approach employed low viscosity oligomers before photocuring and demonstrated properties of higher molecular weight precursors after photocuring
- Thiol-ene coupling and acrylamide homopolymerization enabled simultaneous linear molecular weight growth and crosslinking, respectively
- Photocured, chain-extended oligomers demonstrated $> 2x$ increase in molecular weight between crosslinks and tensile strain at break compared to non-chain-extended, photocured oligomers while maintaining gel fractions in excess of 90 %

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