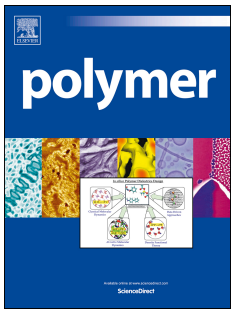
Accepted Manuscript



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PII: S0032-3861(18)30188-5

DOI: 10.1016/j.polymer.2018.02.056

Reference: JPOL 20404

To appear in: *Polymer*

Received Date: 6 January 2018

Revised Date: 19 February 2018

Accepted Date: 22 February 2018

Please cite this article as: Sirrine JM, Meenakshisundaram V, Moon NG, Scott PJ, Mondschein RJ, Weiseman TF, Williams CB, Long TE, Functional siloxanes with photo-activated, simultaneous chain extension and crosslinking for lithography-based 3D printing, *Polymer* (2018), doi: 10.1016/j.polymer.2018.02.056.

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

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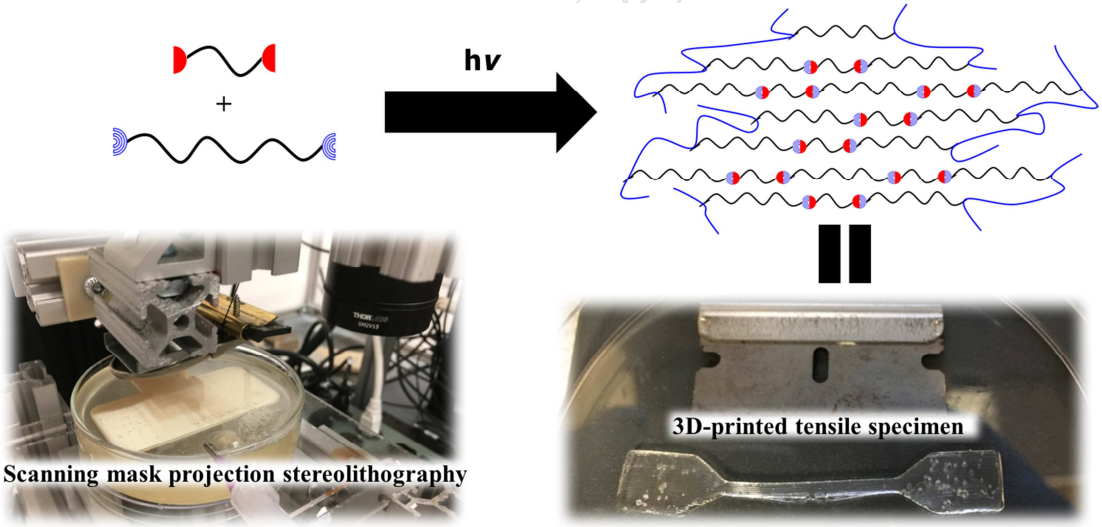
Keywords: poly(dimethylsiloxane); PDMS; 3D printing; additive manufacturing; vat photopolymerization; stereolithography; thiol-ene; photopolymer; elastomer



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 %