

Fabrication of A Compliant Metallized Microstructure for Dry Contact Thermal Conductance Enhancement

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Objective

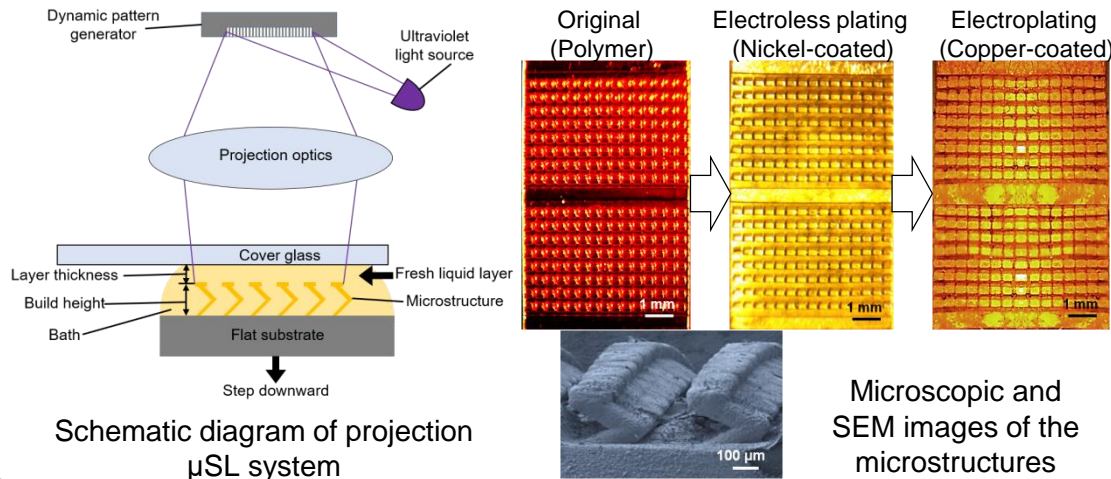
Develop novel solution for the reduction of thermal contact resistance in **dry contact** applications at **low contact pressures**
Target application: thermally limited **applications that disallow or discourage use of conventional TIMs**, such as **pluggable optoelectronic transceiver module**

Approach

- Build a projection micro-stereolithography (μ SL) system
- Develop electroplating and electroless plating procedure to metallize polymer structures
- Construct experimental facilities to characterize mechanical compliance and thermal resistance of the microstructure

J. Cui, J. Wang, Y. Zhong, J. A. Weibel, L. Pan, (2018). *Journal of Micro-mechanics and Micro-engineering*, 2018.

Fabrication of Microstructures



Conclusions

- Construct a low-cost high-throughput 3D micro-fabrication system
- Develop a compliant metallized microstructure which has thermal resistance not affected by surface nonflatness