# Digital Manufacturing of Lightweight and Efficient Structures via Reconfigurable Lattice Printing

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## Research Objectives

- Goal: prove a new approach in the rapid fabrication of efficient structures via reconfigurable lattices from long chains
- Innovation: completely new class of fabrication techniques; applicable across millimeter to meter size scale; wide range of materials
  - SOA: monolithic fabrication of lattice structures, each custom fabricated and not reusable
  - Having a reasonable design concept, we start at TRL2 and will take it through TRL4

## Potential Impact

- Benefits: structures with efficient material usage; high pre/post-deployed volume ratio, reconfigurable/reusable
- Ideal for on-demand fabrication while in space
- New class of additive manufacturing in which slightly more complex engineered base material is assembled to produce desired geometry
- Enables additive manufacturing at the scale of civil structures, as flexibility in materials enables, e.g., 1m steel beams connected in series to be quickly coiled to produce a structural truss