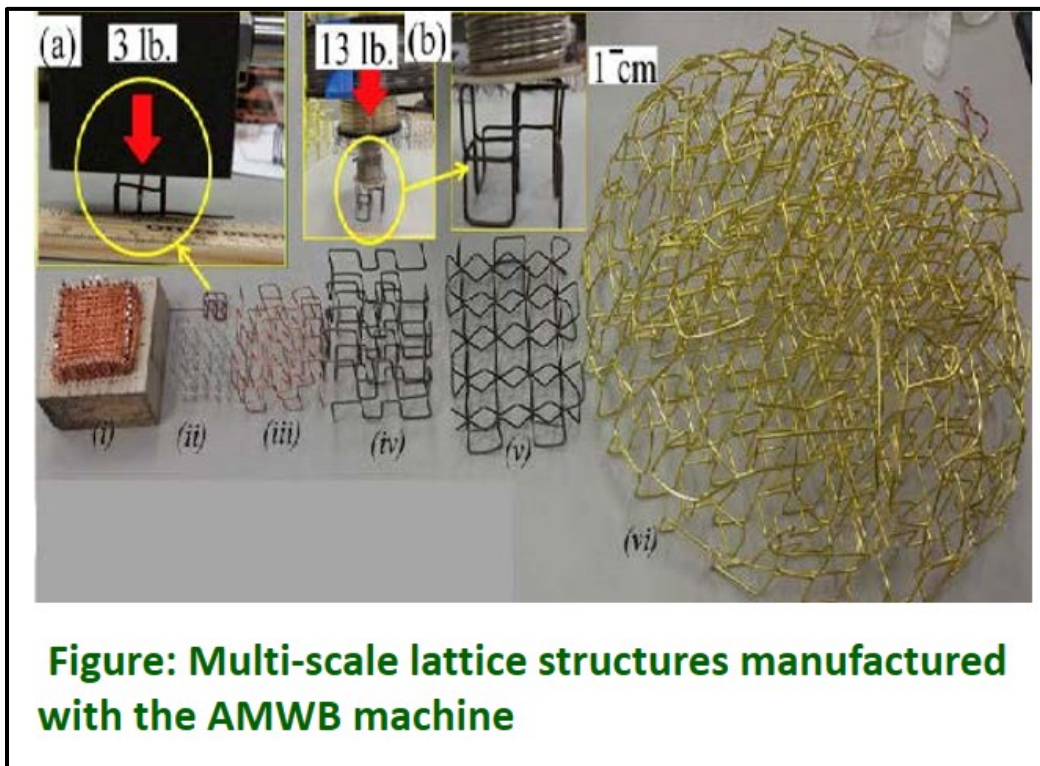


NOVEL WIRE BENDING MANUFACTURING SYSTEM FOR PERFORMANCE DRIVEN 3D STRUCTURES (RFT-563)

Invention Summary:

Even with the progress in 3D printing techniques, there are very few alternatives for producing 2D or 3D lattices for use as support structures in objects needing to be lightweight, strong and flexible. There is currently no manufacturing system that can bend a linear material rapidly, in multiple axes, in multiple and diverse configurations, and with any size diameter linear material. Researchers at NDSU have developed a novel automatic metal wire bending (AMWB) machine to manufacture performance driven 3D lattice structures. This manufacturing system overcomes the several drawbacks in the current 3D manufacturing processes and provides a 3D solid appearing structure with desired characteristics. The process is simpler and faster; the resulting scaffolds undergo periodic and/or non-periodic shape conforming during manufacturing itself, omitting the need for any additional shape conforming steps.



NDSU Research Foundation

1735 NDSU Research Park Drive Dept. 4400 PO Box 6080 Fargo, ND 58108-6050
701.231.8173 or 701.231.6659 Fax 701.231.6661 www.ndsuresearchfoundation.org

Benefits:

- Simpler, faster, automated process
- Cost effective
- Linear material bending
- Bending in multiple axes and configurations
- Customizable sizing of materials
- Controllable properties like heterogeneity, topology-based progressivity, aperiodicity, etc.

Phase of Development:

This technology has successfully completed laboratory testing with reproducible results.

Applications:

- Biomedical devices
- Porous prosthetics
- Drone manufacturing
- Building and roofing solutions
- Automotive components
- Cooling blocks for electronics
- Protective gear
- Defense applications

Patents:

This technology is [patent pending](#) in the U.S. and is available for licensing/partnering opportunities.

Contact:

Saurabhi Satam

Business Development and Licensing Associate

ssatam@ndsuf.org

<http://www.ndsuresearchfoundation.org/>

701-231-8173

NDSU Research Foundation

1735 NDSU Research Park Drive Dept. 4400 PO Box 6080 Fargo, ND 58108-6050
701.231.8173 or 701.231.6659 Fax 701.231.6661 www.ndsuresearchfoundation.org