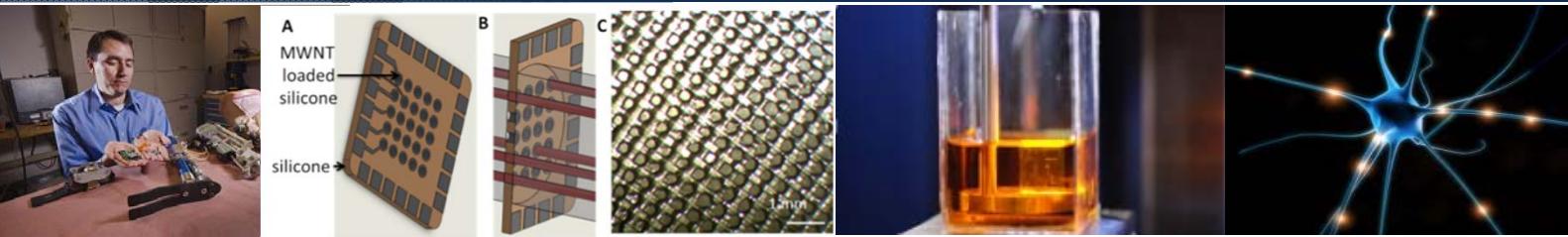



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## Fabrication of Neural Interfaces using 3D Projection Micro-Stereolithography

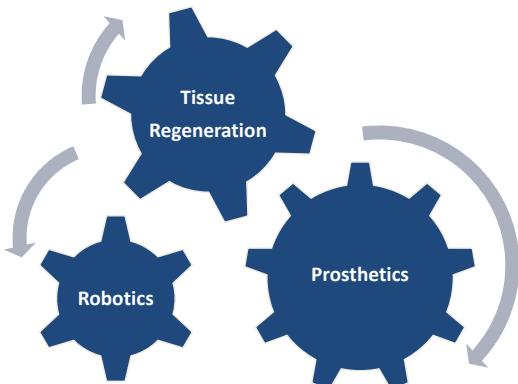
Steven Buerger (SNL), Elizabeth Dirk (UNM), Shawn Dirk (SNL)

### Technology

University of New Mexico and Sandia Corporation researchers have collaboratively developed a new method to fabricate unique neural interface materials. This innovative method advances state of the art neural interface technology by developing photo-patternable synthetic materials with material properties closely matched to neurons.

The stereolithographic method for the facile production of materials that assist in localized neuron growth and allows for close integration of the interface materials with biological tissue without adverse effects on the surrounding tissues. This new neural interface exhibits selective and structured conductivity to allow for multiple, electrically independent electrode sites and bidirectional transmission of neural signals. The interface can be physically and electrically connected to external circuitry through wires attached to each of the electrode sites. It can also withstand significant patient movement and mechanical duress.

### Primary Applications



### Motivation for Collaboration

Peripheral neural interfaces are an important and valuable technology in the health sciences. They serve a wide variety of purposes, including: facilitating the exchange of information between the nervous system and various electrical circuits that can be used to control sensorimotor prosthetic devices, restore lost function due to nerve damage, and improve the overall human understanding of the fundamental mechanisms of nervous system operation. By leveraging the expertise of several technical organizations we can provide a more comprehensive technology for the benefit of the public.



For more information please contact:  
**Erin Beaumont**  
**ebeaumont@stc.unm.edu**  
 (505) 272-7912

