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## Inexpensive method for wafer size laser scribing of arbitrary patterns

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Micro- and nanolithography techniques are a key factor in pushing the limits of science and technology. This is especially true in the semiconductor industry which has made remarkable progress over the last 20 years. With the technology focus moving to smaller and smaller scale, numerous lithography methods of manufacturing complex micro- and nanostructures (such as photo, nanoimprint, e-beam, soft and focused ion beam) have been developed. However, most of these techniques have limitations in the form of material choices, speed, cost and/or pattern shape/size. Clearly a fast, low-cost and versatile method of producing high quality surface patterns is needed. Here, an approach that offers low-cost, fast manufacturing of complex patterns over large scale is presented. The method proposed can be used to directly describe the desired pattern on the light sensitive material or create a master to be used for transferring a pattern to the appropriate material. The desired motif is drawn on a computer and transferred to the photoresist using our setup consisting of commercially available LED laser. Surface of the material can then be engraved with the predetermined pattern using standard etching techniques. The method described here represents an affordable, fast and versatile way of manufacturing complex micro- and nanostructures without some of the design, throughput and material limitations faced by costlier techniques, making state of the art research more affordable and accessible.

### Biography

Goran Rasic has received his PhD in 2014 from NC State University and is currently a NSF Post-doctoral Fellow at NC Central University. His research interests include nanoscale lithography, novel manufacturing techniques and magnetic and multiferroic thin films for device applications. He has published 8 papers, one book chapter and two patents.

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