

THE ABILITY TO CREATE NANOSTRUCTURES OVER LARGE AREAS

K. Salaita, Y. Wang, J. Fragala, R. A. Vega, C. Liu, C. A. Mirkin, “Massively Parallel Dip-Pen Nanolithography with 55,000-Pen Two-Dimensional Arrays,” *Angewandte Chemie International Edition*, **2006**, *45*, 7220–7223.

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Innovative scanning-probe methods like dip-pen nanolithography (DPN) allow researchers to build nanoscale structures for the first time. These methods deposit molecular “inks” from the tip of an atomic force microscope (AFM) directly onto a surface, and can create structures as small as tens of nanometers. The drawback of these methods? Low speed and low throughput.

NU-NSEC researchers have addressed this limitation with the development of a method that uses many AFM tips in parallel to generate identical nanostructures over square centimeter areas. Each tip can be used to independently create a replica of the desired pattern with the resolution of a single AFM tip. This is a simple and flexible way to perform high-throughput, large-area, direct-write molecular patterning.

