

## Dip-pen Nanolithography (DPN)

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In the field of nanoscience and nanotechnology, the development of lithographic methods for fabricating submicrometer and more recently sub-100 nm features is of great interest for both fundamental and technological purposes. Many structures, when miniaturized to the sub-100 nm length scale, possess architecture dependent chemical and physical properties. The ability to print such structures and interface them with larger architectures is opening applications in electronics, optics, catalysis, and biosensing. Examples of lithographic methods for making micro and/or nano scale patterns include photolithography, microcontact printing, e-beam lithography, nanoimprint lithography, and dip-pen nanolithography (DPN). The development of DPN as both a nanofabrication research and production tool has been the topic of significant interest over the past five years. DPN, which is a direct-write scanning-probe-based lithography, utilizes a cantilever tip to deliver various reagents to nanoscopic regions of a target substrate with high resolution and registration. Herein, I'll present an approach to fabricate various nano-structure with DPN. Furthermore, I'll talk about the parallel writing capabilities of DPN.