

# DNA Nanostructures Mediated Molecular Imprinting Lithography

*Cheng Tian,<sup>1,†</sup> Hyojeong Kim,<sup>1,†</sup> Wei Sun,<sup>2,3</sup> Peng Yin,<sup>2,3</sup> Haitao Liu<sup>1,\*</sup>*

<sup>1</sup>Department of Chemistry, University of Pittsburgh, Pennsylvania 15260, United States

<sup>2</sup>Wyss Institute for Biologically Inspired Engineering, Harvard University, Boston, Massachusetts 02115, United States

<sup>3</sup>Department of Systems Biology, Harvard Medical School, Boston, Massachusetts 02115, United States

\* Address correspondence to [hliu@pitt.edu](mailto:hliu@pitt.edu).

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ABSTRACT. Soft lithography has been well developed and widely used for nanofabrication. However, it still remains a challenge to develop a general method of constructing the stamp with arbitrary nanoscale features to facilitate their applications. To address this problem, in this paper we developed and demonstrated an advanced molecular lithography method to construct polymer stamps with diverse features and spatial resolution of down to 2 nanometers. DNA nanostructures

with various dimensions including DNA triangles, one-dimensional (1D)  $\lambda$ -DNA, hexagonal DNA two-dimensional (2D) arrays, and 2D DNA brick crystals with three-dimensional (3D) features served as masters to transfer negative tone patterns to poly(methyl methacrylate) (PMMA) with high fidelity. This approach opens up new opportunities of using self-assembled DNA templates for soft lithography.