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Direct-Write, Deep UV Pattern Definition in PMMA ANDREW SPISAK, BRIAN BURKE, KEITH WILLIAMS, University of Virginia — In this poster presentation, we discuss opportunities for direct-write UV photolithography through metallized apertures defined by focused ion beam on SPM cantilevers. This process offers subwavelength (<200nm) feature sizes without the need to generate a mask, and the writing process can take place in fully ambient conditions. In our preliminary work, we have patterned polymethyl methacrylate (PMMA) resist by exposing it with the fifth harmonic (213 nm) of an Nd:YAG source through metallized contact apertures in contact with resist. Interference patterns with both near- and far-field origins were observed. We present a straightforward model for interference effects generated in our process, and discuss our ability to tune these effects and generate subwavelength patterns.

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