

Micropatterning of Metal Substrate by Adhesive Force Lithography

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We introduce adhesive force lithography (AFL), a detachment-based method for patterning metal surface. In this method, all the polymer layer except for the desired pattern gets lifted up from the metal surface. The craze microstructure unique to thin polymer films on the order of 10^2 nm is utilized for this AFL along with a difference in adhesive force at two interfaces. Poly (urethaneacrylate) mold, which has a high enough work of adhesion with polymer, makes AFL effective. This technique is purely additive, fast (~ 10 s contact time), and applicable to large area patterning (10 cm X10 cm).