Title: Fabrication of Long Range Order Periodic Nanostructures

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Abstract:
Perfect long range order was obtained in porous anodized aluminum oxide (AAO) using self-assembled anodization of nano-stamped aluminum. Master Ni stamps were fabricated by electro-deposition onto Si nanomolds which were prepared by electron beam lithography. The Ni stamps were imprinted into Al foils. The imprinted Al foils were then anodized. The stamps could be reused multitude times to produce exact replicas. In this research, the development of an inexpensive and fast method of producing highly-ordered large-area (over 1 x 1 inch scale) nanostructures was found. These nanopore arrays can be used for templates in subsequent growth of nanowires with applications in magnetics, electronics, photonics, and biomedical areas.

Keyword: AAO, IMPRINTING, STAMPING