Fabrication of size-tunable Cr nanodots and nanorings array by modified nanosphere

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Abstract

This Letter is devoted to developing a novel and low-cost strategy for fabricating Cr triangular-shaped nanodot and nanoring array patterns by a distinct magnetron sputtering approach using nanosphere lithography-based technology. The size of polystyrene nanospheres had a direct influence on the size and period of Cr nanorings. The lateral sizes, inner sizes, wall thickness and wall height are controllable by varying the process conditions of reactive ion etching, magnetron sputtering and the lift-off process. The wettability can be manipulated by changing the size of the nanorings. This new approach will surely facilitate further exploration of metal nanorings for potential applications in electro-optic devices.

Keyword：nanorings array