

Highly-ordered complex Moiré superlattice structure with 10nm resolution: From fabrication to selective and periodic liquid trapping application

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Complex lateral superlattice structures can be used in their potential applications such as photonics and lithographic templates for opto-electronic and nano-biotechnology devices. Among the methods available for fabricating complex lateral superlattice with high resolution and high throughput, moiré fringe approach resulting from the mismatch of two gratings is particularly interesting, since micro-and nanoscale patterns and complex superstructure can be easily fabricated by simple rotation of periodic layer. In this research, we have developed a new procedure for the construction of high transparent complex moiré superlattice structures with 10nm resolution through secondary sputtering lithography (SSL) technique. This simple, rapid and versatile superlattice fabrication process offers the potential for multi-functions and multi-materials by means of moiré fringe technique of secondary sputtering lithography with unique shape that is difficult to achieve with previous lithographic techniques.