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Author Sheng-Kai Tseng
Author's Email Address No Public.
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Abstract
In this thesis, we proposed a simple method to fabricate polymer surface gratings using different shrinkage-ratio materials. The surface grating was formed on the UV cured OG polymers in terms of holographic technology and molding process.
Firstly, the master molds of the gratings were fabricated on positive photoresist using the holographic interferometry technology. Followed by the sputtering coating, Ni metal was deposited on the master molds with about 300 angstrom in thickness to form metal molds. Then, the UV epoxy was injected into the surface of the metal molds. Finally, exposed by the UV light and removing the positive photoresist, the polymer surface gratings were obtained.
For different shrinkage-ratio UV polymers were used in the experiments and their characteristics in fabricating processes were compared using AFM technology. Finally, the optical transmission characteristics were measured in terms of optical spectrum analyzer (OSA).
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