

### Fabrication of the privacy film by using asymmetric micro prism arrays

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We propose a simple way to make a privacy film by placing micro ratchet arrays on both sides made with ultra-violet (UV) nanoimprint lithography (UV-NIL) without any opaque materials, which is a simple process to make nano/micro patterns and has the normal transparency compared to the commercial privacy films. The effects of changing the refractive indices are analyzed by using optical simulation to trace the ray. Based on the analysis of the optical simulation, we make the privacy film and the character error rate (CER) is measured at various angles by optical character recognition (OCR), which is the distortion of the images varies depending on the refractive indices of both side ratchet arrays. In addition, the metal deposition in two directions on both side ratchet arrays are performed to compare with the privacy film without the metal deposition. We demonstrate the modulation of transparency and the CER by controlling the metal thickness and direction, which can be selected according to the purpose