

Nanoimprint Lithography (NIL) as key enabling technology for volume manufacturing of MNT products

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Nanoimprint Lithography (NIL) has taken an increasingly significant role as next generation manufacturing technology in recent years. More than a decade of research showed its efficiency as alternative to traditional manufacturing technologies. Getting in its mature state as of nowadays, NIL is the key enabling technology for transferring certain applications into high volume manufacturing. Nevertheless these mentioned applications can't be found in microelectronics as it was expected by the industry and stated in early literature. Novel biotechnology applications and especially photonics are the first and favored technologies which are utilizing NIL for HVM. The ability of controlling 3D structures, nanopatterning of high topographies or the modification of surfaces are the essential fabrication steps which are supporting this NIL based production.

This presentation should review the ecosystem of process, materials and equipment and the latest developments which are contributing to the successful manufacturing of high performance photonic devices. Besides the capabilities used for photonics, NIL can be also exploited for other applications. Additionally to the benefit of low cost manufacturing and in general to resolve the potential challenges of nanofabrication by harnessing the potential of NIL for the commercialization of products, further application scenarios are going to be presented for actual high volume manufacturing.