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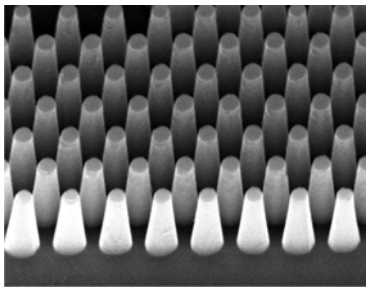
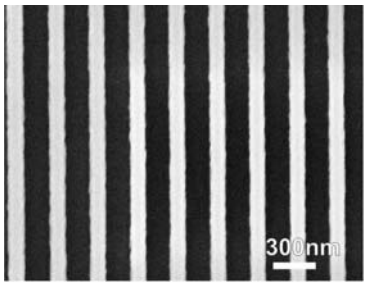
New standard photonic stamps: 2D pillar arrays and multi-resolution linear gratings

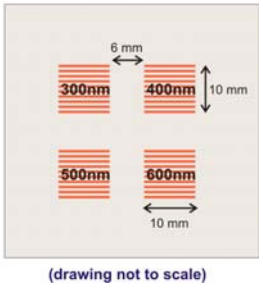
Since the introduction of the standard photonic stamps produced using our proprietary PHABLE technology, many customers have been asking for patterns in the opposite tone, i.e. pillars instead of holes. We are now pleased to respond to this demand with the introduction of new pillar-type patterns. The new templates are initially available in the form of hexagonal arrays with 600nm period. These pillar arrays have a higher aspect ratio than the corresponding hole pattern: customers can select the pillar height up to 1.5um in Si and up to 500nm in fused silica. More information can be found in our photonic stamp brochure.

In addition, we have added a multi-resolution linear grating template to our standard product line-up. These templates, which are designed for R&D work, have gratings with periods of 300nm, 400nm, 500nm and 600nm, each covering an area of 1cm x 1cm. The height of the grating lines is selectable up to 300nm in the case of a Si stamp and up to 150nm for a fused-silica stamp. More details are available in our online brochure.



Pillar type photonic stamp

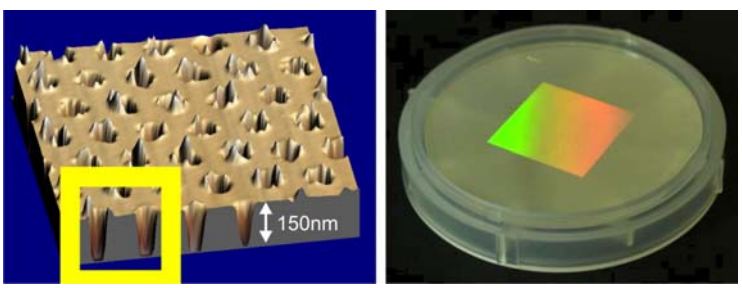




Linear grating stamp: SEM image and layout

Demonstration of GaN etching for improved light extraction efficiency in LEDs

Eulitha aims to provide lithography solutions to the LED industry for improving the light-extraction efficiency of GaN-based LEDs. Photonic crystal patterns transferred on to LED surfaces in the form of holes are known to amplify and shape their light emission. However, the cost, complexity and yield of the lithography step in the LED manufacturing process are issues that need to be addressed for such structures to be widely employed by the industry. Eulitha has started collaborating with the group of Dr. Faiz Rahman of the University of Glasgow, who is a leading expert in this field, to demonstrate the effectiveness of the PHABLE technology for forming the photonic crystal patterns. As the first step Dr. Rahman's group has demonstrated the successful transfer of patterns printed using a PHABLE exposure tool into GaN layers. The photoresist structures were transferred with an RIE process. Etch depths up to 150nm were readily achieved without the need for a hard etch mask, which is important for reducing process complexity and cost. The next step in the process will be the demonstration of emission improvement obtained with such structures



Left: AFM image of 520nm period hexagonal photonic structure etched 150nm into GaN layer. Right: PHABLE made photonic structure on a 2" LED wafer. (Images courtesy of R. Dylewicz, F. Rahman, University of Glasgow)

EULITHA recognized as one of three finalists for the prestigious Pioneer Award

Eulitha was selected as one of the three finalists for this year's ZKB TECHNOPARK® Pioneer Award in recognition for its revolutionary PHABLE technology for forming photonic patterns on various devices, most notably on LEDs for improving energy efficiency. The Pioneer Award is one of the most prestigious awards given annually in Switzerland, for innovative technologies that are about to enter the market, and which have particular social relevance. In the award ceremony held on 5 April, Dr. Thomas von Waldkirch, President of the Technopark Zurich Foundation, reminded the audience of recent events in Fukushima, Japan and the importance of saving energy, as he introduced Eulitha's PHABLE technology before he went on to describe the advantages that PHABLE offers.

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