

Imec reports customized lenslet array for KLA-Tencor's advanced e-beam tool

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Imec announces that it has designed and fabricated an electrostatic micro-lens (lenslet) array for KLA-Tencor's anticipated Reflective Electron Beam Lithography (REBL) tool. The REBL technology potentially enables a high throughput e-beam writing process for maskless lithography. The lenslet array is a key component for the parallelization of the e-beam writing process. Functionality of the lenslet chip was demonstrated in KLA-Tencor's REBL e-beam column.

The lenslet consists of a densely packed array of 4 μ m deep cylindrical holes with a 1.4 μ m diameter and top spacing of only 200nm. The [electron beam](#) entering the lenslet holes is focused through a set of 4 ring electrodes. The ring electrodes can be tuned to focus the electron beams by applying static voltages up to 50V on the ring electrodes. The bottom of each hole consists of a small metal plate that can be switched by a CMOS circuitry below, either reflecting or absorbing the incoming electrons. In this way, the incoming electron beam is split into 1 million smaller beamlets, a strategy designed to enable higher throughput for the e-beam writing process through parallelization.

Via its CMORE service, imec offers companies all the services need to develop packaged customized specialty microsystem products. Imec's services range from feasibility studies, design and technology development, testing and reliability studies, to prototyping and low-volume manufacturing. And through its alliances, imec can also offer a path to transfer the technology to a foundry for [volume production](#). The CMORE toolbox contains a wide variety of device technologies on

200mm such as CMOS, Si-photonics, MEMS, specialty image sensors and packaging.

"Many companies can benefit from specialty [semiconductor devices](#) to enhance and increase the functionality of their equipment;" states Rudi Cartuyvels, Vice President Smart Systems and [Energy Technology](#) at imec. "We are pleased that our semiconductor and heterogeneous integration expertise, and our design and production service, supported the development of KLA-Tencor's REBL tool."

Provided by IMEC

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