CANON Inc.

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1. Endeavors in Micromachine Technology

At Canon, we provide our customers with reliable products in a wide range of fields, including imaging equipment from personal cameras to broadcasting and professional uses; business machine such as printers, copying machines, and scanners; manufacturing and ultraprecision equipment for semiconductors and flat panel displays such as mask aligners and etchers; and medical equipment such as X-ray digital cameras and fundus cameras. These key components for our products in-house incorporate a variety of innovative technologies that adopt micromachine technology, and ensure that Canon always remains ahead of the competition.

Our R&D organizations are actively developing new products featuring micromachine technologies. To accomplish this, we are collaborating with experts in a variety of fields, including material development, simulation analysis, physical analysis and chemical analysis.

2. Development of Micromachine Technology

A specialist in high-precision processing, Canon was early to begin developing devices with micromachine technology, such as sensors and optical devices. The representative example of our MEMS devices is the print head lie at the heart of our inkjet printer, developed by our original technology in the 1970s. To produce micro fine droplet accurately, the nozzles, the most important part of the print head (Fig.1), must be made highly precise. Combining our micromachine technology and material technology into every nozzle manufacturing step, Canon has developed the original nozzle manufacturing process to produce highly precise integral nozzles and eliminated the use of bonding process. This technology also enables high-density nozzle packing and leads to the breakthrough in printhead performance. We have named this technology as FINE (Full-photolithography Inkjet Nozzle Engineering).

At Canon, we are also actively engaged in the development of processing technologies for MEMS in next generation products, such as the Einzel lens arrays (Fig.2) and Micromirrors (Fig.3). Einzel Lens arrays perform aberration correction which is essential for achieving high throughput in next generation maskless exposure systems employing a multi-electron beam, and is useful to large items and small production. Micromirrors are expected to be applied in laser scanning displays and optical switches in next generation.

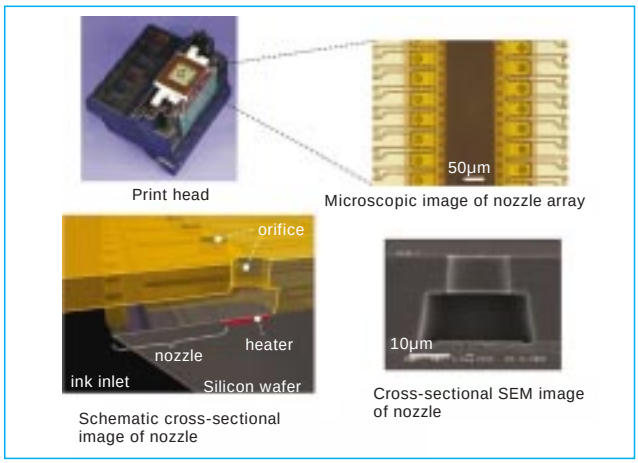

Fig. 1 Inkjet head

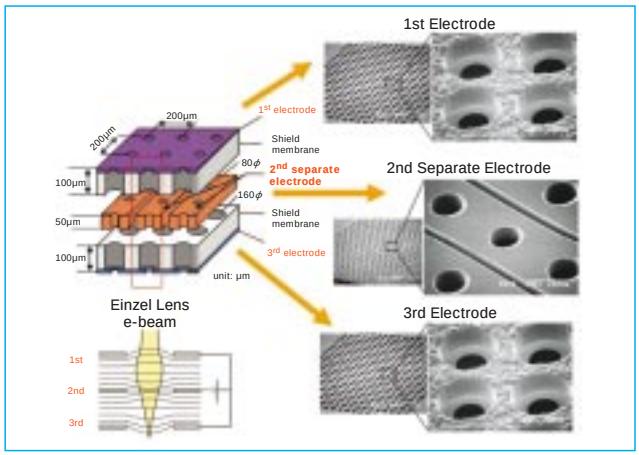

Fig. 2 Einzel lens array

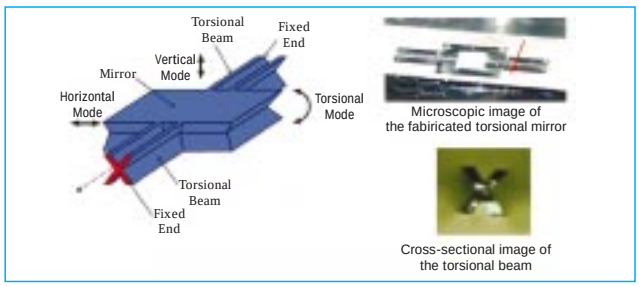

Fig. 3 Micromirror

3. Future Endeavors

The importance of micromachine technology will continue to increase for its use in product discrimination. We will continue to cultivate this technology in pursuit of new potential, and then the ongoing development of reliable products ensure to satisfy our customers.