

# Editorial

It is a great pleasure to have this special issue on microtransducer technologies in the Journal of Semiconductor Technology and Science. The nine papers of this issue provide interesting results on recent advancement in microtransducers and microsystems research. The subjects of the papers include Bio MEMS, material and analysis, and other physical transducers such as infrared sensor and accelerometer.

The first three papers report on bio applications. A. Han *et al.* presents the development of a microsystem for whole blood purification using magnetophoresis and electrophysiological analysis of the purified cells using electrical impedance spectroscopy (EIS). Y. Kim *et al.* reports the fabrication process and experimental results of two different types of flexible MEMS biosensors based on polymer/metal multilayer processing techniques - a microelectrode array (MEA) for nerve signal monitoring and a tactile sensor. Y. Yi *et al.* present air bridge type electrode system with tunable electrode distance for detecting electroactive biomolecules to replace expensive nano gap patterning.

The next two papers address fabrication and material issues. W. Lee *et al.* describes the fabrication and analysis of a circular diaphragm using boron etching stop method especially for acoustic transducers such as microphones or microspeakers. K. Naka *et al.* report chemical, electrical, mechanical properties of pyrolyzed polyimide (PIX-1400) thin film as MEMS material.

The last four papers describe physical transducers and their storage application. C. Han, et al. report the simulation of a micromachined dome-shaped-diaphragm acoustic transducer built on a 1.5  $\mu\text{m}$  thick silicon nitride diaphragm. I. Kim *et al.* present the design, fabrication of inertial-grade vertical-type and lateral-type differential resonant accelerometers (DRXLs) for navigational applications. S. Ryu *et al.* report development of surface micromachined Infrared (IR) focal plane array (FPA), in which single  $\text{SiO}_2$  layer works as an IR absorbing plate and  $\text{Pb}(\text{Zr}_{0.3}\text{Ti}_{0.7})\text{O}_3$  thin film served as a thermally sensitive material. H. Nam *et al.* describe silicon nitride cantilevers integrated with silicon heaters and piezoelectric sensors developed for the scanning probe microscope (SPM) based data storage application.

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Euisik Yoon

Editor of microtransducer technologies special issue