Editorial

We are very pleased to announce that we publish special issue of “memory devices” in this month.

As we all know, there are two big categories of memory devices depending on their functionality. One is the volatile data storage device represented by “DRAM” and the other is the non-volatile memory device preserving data in the condition of no electrical power, among which “Flash Memory” is the most commonly available in the commercial market.

Recently there has been a tremendous growth of mobile telecommunication technology. This requires higher-level functionality of electronic devices such as faster speed, higher density of data storage space, and even lower power consumption. As we move into mobile multimedia world, high-density non-volatile memory market grows faster.

In this issue, we have carefully chosen topics related to the above discussions. It includes three papers regarding MRAM and two papers discussing FeRAM devices, both of which draw much attention as high density, high speed non-volatile devices. Especially, the papers regarding MRAM devices show extended discussions about MTJ cell and optimal sensing circuit in addition to the unit cell device issues. Contents of FeRAM devices deal mostly with 1-Transistor type ferroelectric memory discussing about current obstacles realizing functional array device. Two possible new conceptual nano-memory devices are, then, introduced. One is the InAs quantum dots nonvolatile memory device and the other is a new nano-structure EEPROM device.

In addition to the topics mentioned above, there are valuable discussions about Ta/TaN_x metal gate electrodes and characterization of 2.2 nm-thick SiO_2 film, both which are very important process issue in scaling current memory fabrication technology.

We sincerely thank all authors for paper submission and sharing research progress with us.

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Editors of this special issue