

School Seminar (2016-14)

School of Materials Science & Engineering

“Strategy for Integration of Organic Memory Cells: Advanced Materials and Architectures”

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(Institute of Advanced Composite Materials, KIST Jeonbuk)

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Strategy for Integration of Organic Memory Cells: Advanced Materials and Architectures

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Recently, organic materials such as conjugated polymer have been widely used for active component of organic electronics. With the rapid development of information technology, the demand for inexpensive and high density data storage media has increased. Organic non-volatile memory devices have been some of the most promising candidates for next generation storage media. The researches on organic memory device have focused on synthesis of various organic materials, device fabrication, device testing, and design of device structure or memory architectures. In order to understand the origin of switching behavior, various phenomenological explanations based on the experimental results, theoretical modeling or calculations have been performed. Despite of above efforts, reproducibility, uniformity of organic memory devices are still poor compared to the conventional inorganic memory devices. Development of optimal device structure for minimization of dimension and studies on feasibility for basic logic devices such as one transistor-one resistor (1T-1R) or one diode-one resistor (1D-1R) is still necessary. In addition, synthesis of novel organic materials should be readily introduced for making high performance organic non-volatile memory applications which have faster switching time, better endurance, and data retention.

In this talk, we will focus on materials and device architectures for high performance memory cell array.