Special Issue

High-Performance Materials for Thin-Film Transistors and Other Electronic Device Applications

Message from the Guest Editor

In the last 40 years, thin-film transistors (TFTs) have come a long way from potential electronic devices to being used in our smartphones. Advancements in TFTs have been achieved through technological improvements in the research and development of materials, processes, and devices. From a materials perspective, semiconductors have been the main focus. Amorphous and polycrystalline materials have been investigated, from amorphous silicon and polysilicon to organic materials, oxide semiconductors, CNTs, and the recent development of perovskite and 2D materials. For dielectrics, SiO2 has been the main choice, but high-k dielectrics have also been considered. Ferroelectric dielectrics have also opened the way to other advanced applications. The materials used as the substrate have also changed with time, as nowadays flexible or even stretchable substrates are commonly investigated. In terms of processes, vacuum processes like sputtering and plasma-enhanced chemical vapor deposition (PECVD) have mostly been used for practical industrial applications. Nonetheless, non-vacuum processes, including but not limited to inkjet printing, spin-coating[...]

Guest Editor

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