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Multi-Layer Mn-Doped SnO2 Thin Film for Multi-State Resistive Switching

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Abstract : Well self-assembled pure and Mn-doped SnO2 nanocubes were synthesized by interface thermodynamic method, which is ideal for highly homogeneous large scale thin film deposition on flexible substrates for various electric devices. Mn-doped SnO2 shows very good resistive switching with high On/Off ratio (over 103), endurance and retention characteristics. More important, the resistive state can be tuned by multi-layer fabrication by alternate pure SnO2 and Mn-doped SnO2 nanocube layer, which improved the memory capacity of resistive switching effectively. Thus, such a method provides transparent, multi-level resistive switching for next generation non-volatile memory applications.

Keywords : metal oxides, self-assembly nanoparticles, multi-level resistive switching, multi-layer thin film
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