
Preparation of NiO thin films by MOCVD using new liquid aminoalkoxide Ni precursor, Ni(dmamb)₂ and their resistance switching phenomena

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NiO films have attracted much attention for their reproducible resistance switching characteristics with their potential applications for nonvolatile resistive random access memory (ReRAM) devices. Recently, several researchers have investigated the resistance switching of NiO films deposited by magnetron sputtering method. MOCVD has been regarded as a promising method for high quality NiO films because they have some advantages over other methods such as good uniformity, controllability of thickness with a low defect density, better step coverage. In MOCVD process, proper choice of precursor is important. In this study, we prepared NiO thin films on Si and Pt/SiO₂/Si substrates using newly-synthesized liquid Ni precursor, Ni(dmamb)₂ and O₂, by low-pressure metal-organic chemical vapor deposition (LP-MOCVD). The NiO films were deposited with various temperature region and characterized by XPS, XRD, SEM measurement. The resistance switching of Pt/NiO/Pt capacitor structure was also investigated.