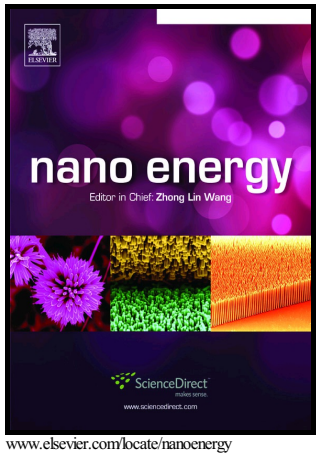

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Abstract

In this work, we used the polycrystalline-Fe_3O_4 to improve the reliability of the Ag/Ta_2O_5/Pt resistive random access memory (RRAM). In both the Ag/Ta_2O_5/Fe_3O_4/Pt and Ag/Fe_3O_4/Ta_2O_5/Pt structures, the switching properties for these bilayer RRAMs were measured in atmosphere and vacuum environments. The results demonstrated that the humidity would affect the Ag filament formation in different environments, and the Ta_2O_5 and Fe_3O_4 interface