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Ferroelectric switching in epitaxial $PbZr_{0.2}Ti_{0.8}O_3$/ZnO/GaN heterostructures JUAN WANG, PAVEL SALEV, ALEXEI GRIGORIEV, The University of Tulsa — As a wide-bandgap semiconductor, ZnO has gained substantial interest due to its favorable properties including high electron mobility, strong room-temperature luminescence, etc. The main obstacle of its application is the lack of reproducible and low-resistivity p-type ZnO. P-type doping of ZnO through the interface charge injection, which can be achieved by the polarization switching of ferroelectric films, is a tempting solution. We explored ferroelectric switching behavior of $PbZr_{0.2}Ti_{0.8}O_3$/ZnO/GaN heterostructures epitaxially grown on Sapphire substrates by RF sputtering. The electrical measurements of Pt/$PbZr_{0.2}Ti_{0.8}O_3$/ZnO/GaN ferroelectric-semiconductor capacitors revealed unusual behavior that is a combination of polarization switching and a diode I-V characteristics.

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