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Electrical properties of solid-solution $\text{SrZr}_x\text{Ti}_{1-x}\text{O}_3$ grown epitaxially on Ge by molecular beam epitaxy REZA MOGHADAM, KAMYAR AHMADI, University of Texas at Arlington, Z.-Y XIAO, XIA HONG, University of NebraskaLincoln, JOSEPH NGAI, University of Texas at Arlington — The epitaxial growth of crystalline oxides on semiconductors enables new functionalities to be introduced to semiconductor devices. In particular, dielectric and ferroelectric oxides grown epitaxially on semiconductors provide a pathway to realize ultra-low power logic and memory devices. Here we present electrical characterization of solid-solution $\text{SrZr}_x\text{Ti}_{1-x}\text{O}_3$ grown epitaxially on Ge through oxide molecular beam epitaxy. $\text{SrZr}_x\text{Ti}_{1-x}\text{O}_3$ is of particular interest since the band offset with respect to the semiconductor can be tuned through Zr content x . We will present current-voltage, capacitance-voltage and piezoforce microscopy characterization of $\text{SrZr}_x\text{Ti}_{1-x}\text{O}_3$ - Ge heterojunctions. In particular, we will discuss how the electrical characteristics of $\text{SrZr}_x\text{Ti}_{1-x}\text{O}_3$ -Ge heterojunctions evolve with respect to composition, annealing and film thickness.

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