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**Interface Electrostatics and the Schottky Barrier for Alkaline Earth Oxides on Silicon** RODNEY MCKEE, FRED WALKER, CURT BILLMAN, Oak Ridge National Laboratory — In our recent work relating to Schottky Barrier Height measurements for alkaline earth oxides on silicon we reported on Coulomb Buffer effects for oxide/semiconductor junctions. The Coulomb Buffer effects arise from both interface chemistry and dielectric phenomena associated with ionic polarizability in an interface phase. In this talk we will address the latter of these issues with both XPS and capacitance measurements of the electronic structure of alkaline earth oxide/silicon heterostructures. We find systematic variations of the barrier height that are unique to a crystalline/crystalline interface in a MOS capacitor. This observation suggests a coupling between the dielectric constant of the oxide and the charge density that is localized around the silicon atoms in the interface phase.

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