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**TiO<sub>2</sub> as an electrostatic template for epitaxial growth of EuO on MgO(001) by reactive molecular beam epitaxy**  
ADRIAN SWARTZ, JARED WONG, IGOR PINCHUK, ROLAND KAWAKAMI, UC Riverside — Interfacial electrostatics play a key role in determining epitaxial quality in the heteroepitaxy of ionic rock salt materials. We investigate the initial growth modes and the role of interfacial electrostatic interactions of EuO epitaxy on MgO(001) by reactive molecular beam epitaxy. A TiO<sub>2</sub> interfacial monolayer is employed to alleviate electrostatic interactions between the ions of the EuO and MgO to produce high quality epitaxial growth of EuO on MgO(001) with a 45 degree in plane rotation. For comparison, direct deposition of EuO on MgO, without the TiO<sub>2</sub> layer, is discussed. A key difference of EuO epitaxy on TiO<sub>2</sub>/MgO is the ability to form EuO by substrate assisted oxidation and without the introduction of external oxygen to the interface. Such ultrathin films are shown to have bulk like magnetic properties

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