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**Perpendicular magnetic anisotropy in thin ferromagnetic films adjacent to high-k oxides** MENG XU, CHONG BI, MARCUS ROSALES, TY NEWHOUSE-ILLIGE, HAMID ALMASI, WEIGANG WANG, Univ of Arizona — Perpendicular magnetic anisotropy (PMA) in thin ferromagnetic films has attracted a great deal of attention due to interesting physics and promising application in spintronic devices. The strength of PMA is often found to be strongly influenced by the adjacent heavy metal layer and oxide layer. A strong interest has emerged recently to control the PMA of these ultra-thin films by electric fields. Here we report the fabrication and characterization of perpendicularly magnetized 3d transitional metal films next to high-k oxides such as HfO<sub>2</sub> and ZrO<sub>2</sub>. We have investigated structural, magnetic and transport properties of these films. The PMA strongly depends on the thickness of the ferromagnetic layers and the interfacial oxidation level of the bilayers. We will also discuss electric field controlled magnetic properties in these systems. This work was supported in part by NSF (ECCS-1310338) and by C-SPIN, one of six centers of STARnet, a Semiconductor Research Corporation program, sponsored by MARCO and DARPA.

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