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Magnetization manipulation in multiferroic devices. MARTIN GAJEK, LANE MARTIN, YING HAO CHU, MARK HUIJBEN, MICKY BARRY, RAMAMOORTHY RAMESH, UNIVERSITY OF CALIFORNIA, BERKELEY TEAM — Controlling magnetization by purely electrical means is a a central topic in spintronics. A very recent route towards this goal is to exploit the coupling between multiple ferroic orders which coexist in multiferroic materials. BiFeO3 (BFO) displays antiferromagnetic and ferroelectric orderings at room temperature and can thus be used as an electrically controllable pinning layer for a ferromagnetic electrode. Furthermore BFO remains ferroelectric down to 2nm and can therefore be integrated as a tunnel barrier in MTJ's. We will describe these two architecture schemes and report on our progresses towards the control of magnetization via the multiferroic layer in those structures.

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