ABSTRACT: Spintronic devices exploit the spin of the electron and its associated magnetic moment to sense, transport and store information. Recently there has been a particular interest in developing devices that depend on the magnetic properties of long, thin wires where the information is encoded by the transition between two magnetic domains. This transition region, called a domain wall, can be moved changing the value. Controlling the motion of the domain wall is essential for realizing new fast, high-density non-volatile data storage devices. We use a combination of computer simulation and some simple classical models to investigate techniques for improving control from domain wall creation to final positioning. The presentation will focus mostly on our results but experimental verification will be presented along with some recent results showing how defects can be used to improve control. (funded by NSF-DMR)