Influence of Temperature on Domain Wall Geometry in Bistable Magnetic Microwire

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Abstract. Domain wall dynamics in magnetic bistable glass-coated microwire under the influence of temperature was studied. The results of the experiment which can provide information about propagating domain wall geometry and its changes are presented. The measurements were performed on a $Fe_{77,5}Si_{15}B_{7,5}$ microwire with unidirectional effect. Shortening of the domain wall with applied magnetic field was observed. It was observed that also decrease in temperature resulted in the domain wall shortening. The reason for this is that the decreasing temperature changes magnetoelastic anisotropy and amplifies the stresses in microwire induced during the manufacturing process. The observed behaviour is stronger for a slow domain wall in domain wall propagation.