A variational model for the evolution of magnetoelastic materials

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We consider a variational approach to the evolution of a compressible magnetoelastic solid. The energy is non-convex and coupled to a gradient flow equation for the magnetization in the quasi-static setting. The viscous dissipation yields an extended material derivative in the magnetic force balance. I will introduce the model and outline the proof of existence of weak solutions, which is based on De Giorgi's minimizing movements scheme and a representation of the magnetic force balance in terms of the same energy and dissipation potentials as the equation of motion. This is joint work with Barbora Benešová, Šárka Nečasová and Jan Scherz.