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Dynamics of Einstein - de Haas Effect: Application to Magnetic Cantilever.[1] REEM JAAFAR, E.M. CHUDNOVSKY, D.A. GARANIN, Lehman College, The City University of New York — Local time dependent theory of Einstein - de Haas effect is developed. We show that internal elastic twists that accompany dynamics of spins enter equations of elasticity in the universal form that does not require precise knowledge of spin-lattice interactions. As long as the space-time dependence of the magnetization is known, local elastic deformations can be computed rigorously without any unknown parameters. The theory is applied to the description of the motion of a magnetic cantilever caused by the oscillation of the domain wall. Theoretical results are compared with a recent experiment on Einstein - de Haas effect in a microcantilever.

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