requires higher fields, and is by 2÷4 orders of magnitude faster than the former. Determining the character of the reversal mechanism is of prime importance for any magnetic memory device application.

In ferromagnetic thin films, the nature of the irreversible magnetization process can be determined by measuring the dependence of the critical field, H_0, required to induce the process, on the angle θ between the field direction and the plane of the film. Regardless of the exact details of the mechanisms, it can be shown[1] that H_0 is proportional to $1/\cos\theta$ whenever the irreversible magnetization process occurs by wall displacements. On the other hand, when coherent rotation is the dominant mechanism, H_0 is texture dependent and varies with θ between a minimal value and twice this value.

We studied Co-W thin films, electrodeposited at various bath compositions, temperatures and pH values. They showed a variety of phase compositions and textures which are reflected in their coercivity and remanence. By using a vibrating sample magnetometer and measuring the angular dependence of H_0, a $1/\cos\theta$ behavior was established. Thus it was concluded that in Co-W thin film wall displacement is the dominant mechanism responsible for the irreversible magnetization process.

REFERENCE:

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THE STRUCTURE OF $R_{(1-x)}Ga_{2(1+x)}$ $(0 \leq x \leq 0.33)$ AND ITS RELATION TO RGa_6 AND Ga

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X-ray diffraction studies were used to investigate the wide solubility range of Ga in RGa_2 type compounds (R = rare earth element) observed in several systems of light rare-earth metals with Ga. A model was suggested based on pairwise substitution of R atoms by Ga atoms to explain the observed wide range of solubility. The model explains the change in lattice parameters

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of the ε phase having the formula $R_{(1-x)}Ga_{2(1+x)}$ with the addition of Ga.

The structural relation between the phases RGa_2, $(R_{(1-x)}Ga_{2(1+x)})$, RGa_6 and pure Ga was shown and the common feature of these phases which belong to widely different crystal systems was detailed.

STRESS INDUCED TRANSFORMATION IN URANIUM-5 at% TITANIUM MARTENSITE[1]

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It is generally recognized that there is a close analogy between the formation of δ-U_2Ti precipitate (C32 structure type) in U-Ti alloys and the formation of the metastable ω-phase from the β-phase (A2 type) in zirconium or titanium alloys[2]. Such analogy is supported by the striking similarity of crystallographic orientations ω/β and α/β in zirconium or titanium alloys with relationships between δ-U_2Ti, γ-uranium (A2 type) and α-uranium (quasihexagonal, A20 structure type). Indeed, for Zr (or Ti) alloys the orientation relationships are[3,4]: $(0001)_\omega||(111)_\beta$ and $[110]_\beta||[11\bar{2}0]_\omega$, $(0001)_{\alpha\text{-}Zr}||(110)_\beta$ and $[11\bar{2}0]_\alpha||[\bar{1}11]_\beta$ and for U-alloy $[0001]_{U_2Ti}$ and $[100]_{\alpha_U}$ form parallel to the $[111]_{\gamma\text{-}U}$, $(2\bar{1}\bar{1}0)_{U_2Ti}$ and $(001)_{\alpha_U}$ are parallel to the $(101)_{\gamma_U}$[5,6]. It can be anticipated that the crystallographic relation of the U_2Ti to the α-matrix is to be $(0001)_{U_2Ti}||(100)_{\alpha_U}$ and $(01\bar{1}0)_{U_2Ti}||(010)_{\alpha_U}$[6]. All these findings characterize the diffusion controlled γ→δ or supersaturated α'_U→δ transformations. The model for α'_{Zr}→ω diffusionless transition, proposed recently[7] led us to the attempt to record the analogous diffusionless formation of the δ-phase in the U-Ti system. For this purpose the U-Ti alloy was water quenched from the γ-state and metastable α'_U was formed. The metastable α'_U has the same A20 structure as α_U but α' dissolves more Ti. X-ray diffraction analysis unambiguously shows that plastic deformation of α'_U 5at% Ti alloy results in α'→α transition. It can be deduced therefore that the diffusionless formation of δ-phase should accompany the α'→α trans-

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