Crystallization and magnetic hardening of laser ablated and sputtered SmCo films

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Results will be presented about the fabrication using pulsed laser deposition and sputtering, structural and chemical characterizations, crystallization and magnetic hardening of SmCo film. It will be shown that the use of deposition temperatures of ca. 400^{o}C leads to large coercivities (above 2 T at RT) and macroscopic isotropic behaviour whereas the conventional (vacuum furnace) and current flow anneals of as-deposited amorphous films result on out-of-plane (111) textures, anisotropic behaviour and coercivities similar to those obtained when depositing the films at high temperatures. The latter behaviour is related, as shown from the measurement of the temperature dependencies of the coercivity and magnetic relaxation, to the induction of columnar growth during the crystallization.