

Supporting Information

Self-organized spatio-temporal micropatterning in ferromagnetic Co-In films

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Table S1. List of peak positions, their assignation, and crystallite size calculated from the FWHM for each peak corresponding to the films with 25 and 78 at% Co.

	Peak position (°)	Assignment	FWHM (°)	⟨D⟩ (nm)
25 at% Co	29.22	CoIn ₃ (120)	0.326	25
	31.33	CoIn ₃ (112)	0.325	25
	32.97	In (101)	0.123	67
	36.34	In (002)	0.146	57
	39.14	In (110) + Si	0.149	57
	41.78	CoIn ₃ (130) + hcp-Co (100)	0.422	20
	51.59	CoIn ₃ (004) + fcc-Co (200)	0.556	16
	54.47	In (112)	0.191	47
	56.55	In (200)	0.162	56
	60.37	CoIn ₃ (124)+(240)	--	--
	63.24	In (103)	0.279	33
	67.05	In (211)	0.254	38
78 at% Co	29.22	CoIn ₃ (120)	0.553	15
	31.34	CoIn ₃ (112)	0.634	13
	32.95	In (101)	0.132	58
	36.30	In (002)	0.170	44
	39.12	In (110) + Si	n/f	n/f
	41.80	CoIn ₃ (130) + hcp-Co (100)	0.658	13
	44.24	fcc-Co (111)	0.891	10
	51.50	CoIn ₃ (004) + fcc-Co (200)	--	4
	54.48	In (112)	--	--
	60.40	CoIn ₃ (124)+(240)	1.364	5
	75.97	hcp-Co (110) + fcc-Co(220)	1.412	4
	92.37	hcp-Co (112) + fcc-Co (311)	2.074	3
	98.02	fcc-Co (222)	0.658	8

Table S2. Hardness (H), reduced Young's modulus (E_r) and H/E_r , W_e/W_t and W_p/W_t ratios for the Co-In films electrodeposited with different depositions time at a constant value of current density of -16 mA cm^{-2} .

Deposition time	H (GPa)	E_r (GPa)	H/E_r	W_e/W_t	W_p/W_t
250 s	4.6 ± 1.0	115.6 ± 14.4	0.04 ± 0.01	0.27 ± 0.03	0.72 ± 0.16
1000 s	5.8 ± 1.4	108.2 ± 26.1	0.05 ± 0.01	0.43 ± 0.3	0.56 ± 0.32
2000 s	5.9 ± 1.0	119.9 ± 13.0	0.07 ± 0.01	0.30 ± 0.04	0.69 ± 0.21
3000 s	6.1 ± 1.3	116.4 ± 16.9	0.05 ± 0.01	0.32 ± 0.07	0.67 ± 0.33

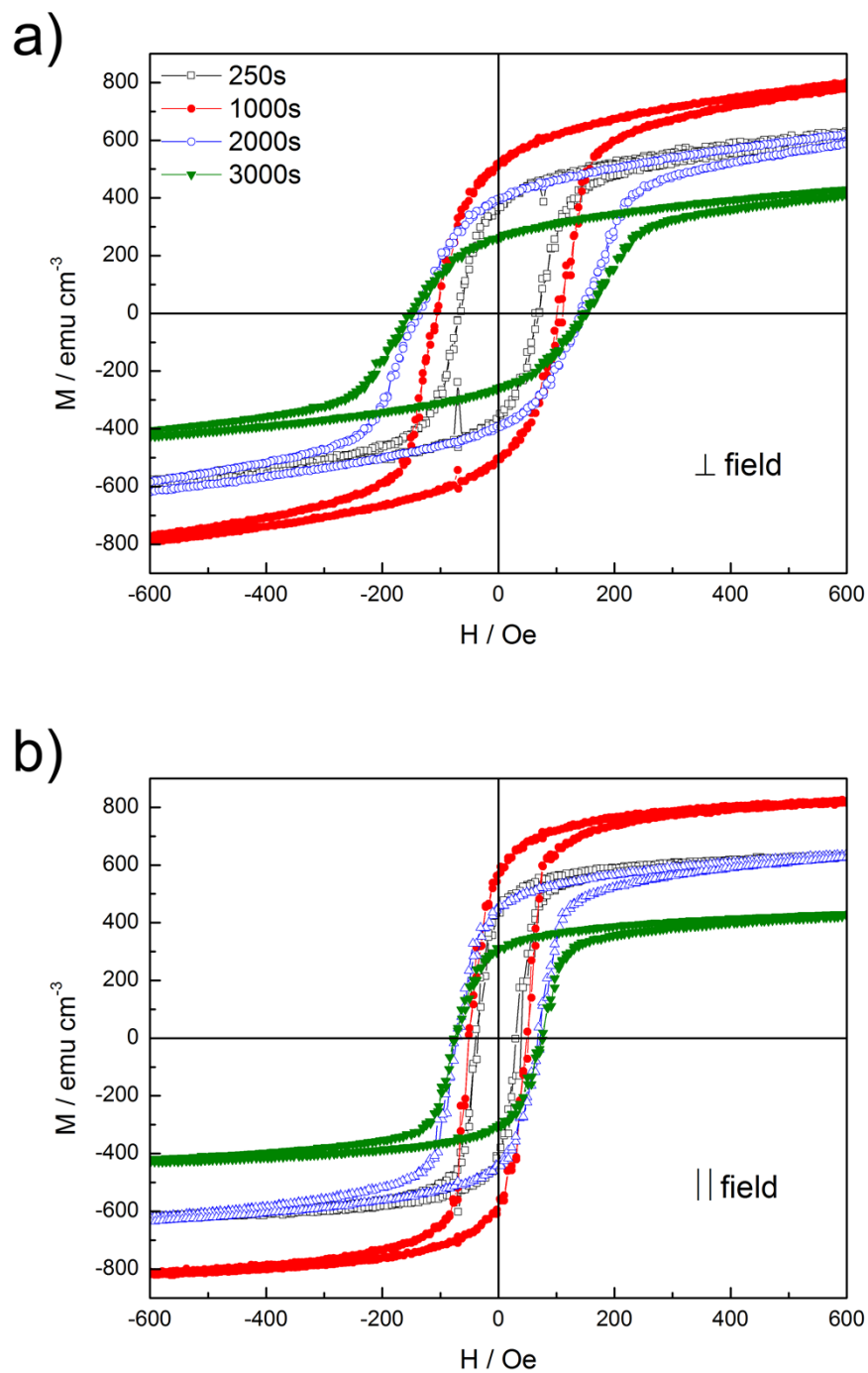


Figure S1. Room-temperature hysteresis loops of Co-In films obtained at -16 mA cm^{-2} for different deposition times measured in a) parallel and b) perpendicular configuration by VSM.

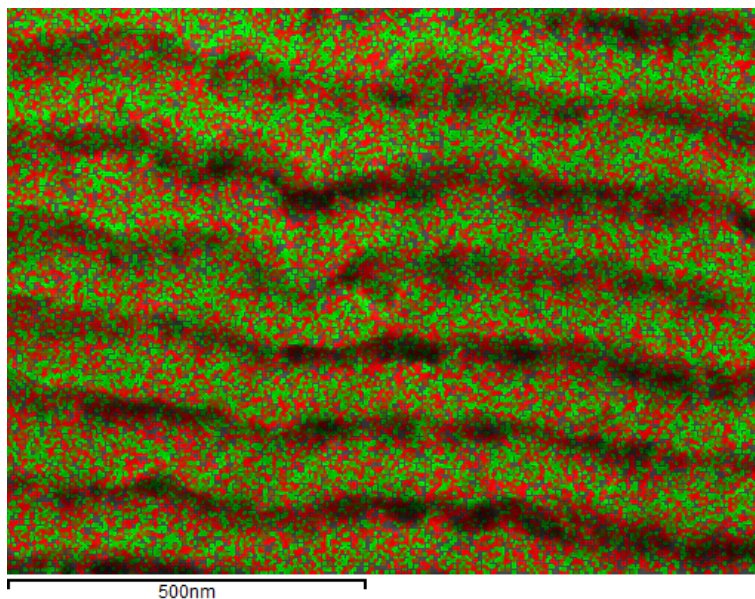


Figure S2. Mapping of the cross-section of Co-In film obtained at -16 mA cm^{-2} for 3000 s deposition time. Green spots: cobalt, red spots: indium.