

## Phase and structure formation in the layered

### $[\text{Fe}_{50}\text{Pt}_{50}/\text{Cu}/\text{Fe}_{50}\text{Pt}_{50}]_n$ ( $n=1, 2$ ) films

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The use of additional layers of alloying element such as Cu in  $\text{Fe}_{50}\text{Pt}_{50}$  films can accelerate ordering processes by changing the stress state in FePt layer and leads to reduction of  $L1_0$  phase formation temperature. The effect of annealing atmosphere and adding of Cu on  $L1_0$  phase formation in  $[\text{Fe}_{50}\text{Pt}_{50}/\text{Cu}(7,5 \text{ nm})/\text{Fe}_{50}\text{Pt}_{50}]_n$  films, where  $n=1, 2$  was investigated. The films were deposited by magnetron sputtering on  $\text{SiO}_2/\text{Si}(001)$  substrate. Annealing of samples in temperature range of  $5000^\circ\text{C}$ - $8000^\circ\text{C}$  for 30 s was carried out in vacuum and hydrogen atmosphere. The phase transition from the disordered  $A1$ -FePt phase into the ordered  $L1_0$  phase in film with  $n=1$  begins after annealing in vacuum at  $500^\circ\text{C}$ . In film with  $n=2$  film ordering temperature rises up to  $700^\circ\text{C}$ . At annealing in hydrogen independently from quantity Cu interlayers  $L1_0$ -FeCuPt forms at  $500^\circ\text{C}$ . The annealing in hydrogen accelerates of ordering processes.