

## Supplementary Information

# Nanostructure-induced $L1_0$ -ordering of twinned single-crystals in CoPt ferromagnetic nanowires

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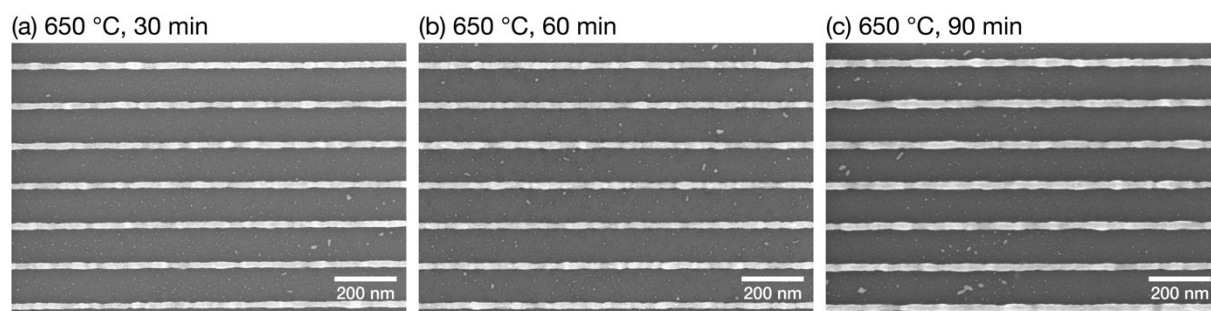
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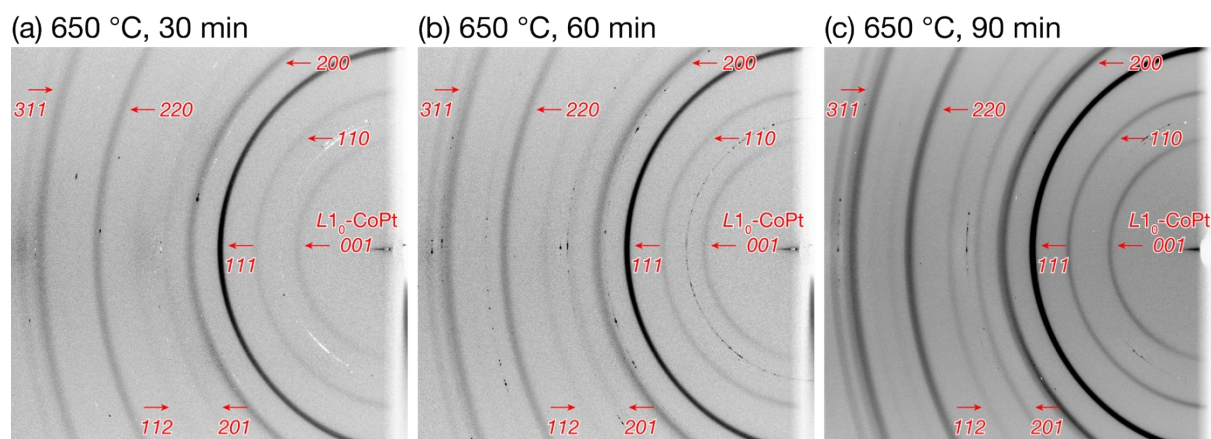
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**Fig. S1.** Typical top-view scanning electron microscope (SEM) images of  $[\text{Co} (3.6 \text{ nm})/\text{Pt} (4.8 \text{ nm})]_6$  multilayer nanowires on  $\text{Si}/\text{SiO}_2$  substrates after annealing at  $650 \text{ }^\circ\text{C}$  for (a) 30 min, (b) 60 min, and (c) 90 min. Part (c) is shown again for easy comparison.



**Fig. S2.** Two-dimensional (2D) grazing incidence X-ray diffraction (GI-XRD) patterns of  $(\text{Co}/\text{Pt})_6$  nanowires on  $\text{Si}/\text{SiO}_2$  substrates after annealing at  $650 \text{ }^\circ\text{C}$  for (a) 30 min, (b) 60 min, and (c) 90 min. The diffraction peaks of  $L1_0\text{-CoPt}$  ( $001$ ,  $110$ ,  $111$ ,  $200$ ,  $201$ ,  $112$ ,  $220$ , and  $311$ ) are indicated by red arrows. Part (c) is shown again for easy comparison.