

# Magnetic properties of ordered Co-Pb nanowire arrays obtained from porous alumina template

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Ordered Co-Pb nanowire arrays embedded in anodic alumina templates were successfully fabricated by electrodeposition. Transmission electron microscopy (TEM) and X-ray diffraction (XRD) observations revealed that the Co-Pb nanowire arrays were polycrystalline phase with uniform diameters around 20 nm and lengths up to several micrometers. The magnetic properties of Co-Pb nanowire arrays were analyzed by a vibrating sample magnetometer (VSM). It is observed that the coercivity  $H_c$  increased from 1300 to 2600 Oe and the squareness ( $M_R/M_S$ ) increased from 0.5 to 0.96 with increasing annealing temperature. The change in coercivity and squareness associated with the microstructure has been investigated. Due to its high  $H_c$  and  $M_R/M_S$ , such a material may be used as high-density perpendicular recording media.

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