Abstract

This work is focused on low cost technology of metal surfaces modification with high ordered metal nanowires or nanorods in gaseous sensing applications. The era of miniaturization brings many demands on modification of common materials properties. In recent years, this challenge is well accepted in the field of nanotechnology. Nanoparticles are composed of various metals such as Pd, Pt, Au, Ag, Ni and Cu. In the principle, the fabrication of nanostructured surfaces is based on electrodeposition of metal ions from solutions to the prepared nanoporous template of alumina oxide. The template was obtained by anodic oxidation of thin sputtered or evaporated aluminum film. The anodization process was performed under specific conditions such as voltage, temperature and suitable electrolyte. The changing of anodizing conditions can influence the geometrical parameters of templates and subsequently the diameter and position of nanowires, as well. The length of nanowires is determined by the deposition time and the concentration of electrolyte solution. The nanostructured surfaces have a wide spectrum of applications in the field of electronics, sensors, surface engineering and optics. The main goals of nanostructured surface are to increase the sensing area and the usage of nanoparticles influence on interference and light focusing in magnetic and biological applications.

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