

Fabrication of Porous Anodic Aluminum Oxide Nanotemplate

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The Anodic Aluminum Oxide template is a promising option for the fabrication of one-dimensional nano-materials application because of its regular structures and high pore density.

In the present work fabrication of ordered nanoholes array on silicon substrate whose surface was covered by Al (200 nm thick). However, remarkably thin Al is so sensitive that; impetuous process can make whole Al membrane separated form the template. Therefore to be able to control the size of pore, the process is required to be conducted under precise temperature and appropriate voltage in short time. When the template is etched with 1.8 wt% chromic acid, 6 wt% phosphoric acid under 50 °C temperature and 0 V, after anodized under low temperature and 40 V, it gets pores whose diameter is 40 nm. And electro-polishing can lead to separation of thin Al even in short time, so it needs to be omitted.

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