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Controllable crystallinity of nickel oxide film with enhanced electrochromic properties

Shuai Hou^a, A.I. Gavriluk^b, Jiupeng Zhao^c, Hongbin Geng^a, NaLi^c, Chunxia Hua^b, Kun Zhang^b,

Yao Li^{*d}

^a School of Materials Science and Engineering, Harbin Institute of technology, Harbin 150001, China.

^b Ioffe Physical Technical Institute of the Russian Academy of Science, Polytekhnicheskaya 26, Saint-Petersburg, Russia E-mail: gavrilyuk@mail.ioffe.ru

^c School of Chemistry and Chemistry Engineering, Harbin Institute of technology, Harbin 150001, China.

^d Centre for Composite Material, Harbin Institute of technology, Harbin 150001, China. E-mail: yaoli@hit.edu.cn; Fax: +86 451 86402345; Tel: +86 451 86402345

Abstract

A NiO_x film with varying crystallinity across film thickness has been prepared by reactive radio frequency magnetron sputtering. The main research achievement is that the electrochemical cycling stability of the NiO_x film has been radically improved as compared with NiO_x films deposited by the conventional technologies. At the same time, the optical modulation has been also improved, whereas other electrochromic parameters, such as the switching rate and high coloration efficiency have been preserved at the required level.

1. Introduction

Nowadays, a large amount of total energy consumption is expended in the field of commercial and civil buildings throughout the world and electricity is the largest source of

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