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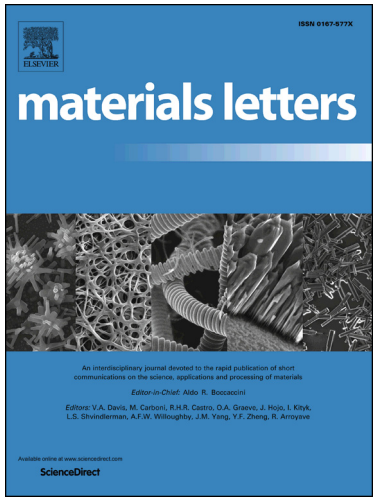

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Synthesis and ethanol gas sensing properties of mesoporous perovskite-type $BaSnO_3$ nanoparticles interconnected network

Gang Wang[1,2], Jing Bai[1],Chuanwen Shan[1],Dake Zhang[1]*,NaiChen Lu[1],Qiang Liu[1],ZhenXiong Zhou[1],ShiGang Wang[2], Cai Liu[2*]

1. College of Electrical and Information Engineering, Beihua University, Jilin ,132013

2. College of Geo-Exploration Science and Technology, Jilin University, Changchun,130012

Abstract

In this paper, we propose a mannitol assisted-hydrothermal and annealing route for synthesis of mesoporous $BaSnO_3$ nanoparticles interconnected network. After sintered at 800 ^oC, the $BaSnO_3$ ceramic powder maintains high crystalline degree and large specific surface area of 121.9 m^2/g. The $BaSnO_3$ nanoparticles connect with each other by forming crystalline bridges. The mannitol plays a role of soft template to construct the mesoporous three-dimensional interconnected network. These features make the mesoporous $BaSnO_3$ nanoparticles interconnected network has enhanced gas-sensing performance to ethanol at 350 ^oC.

Keywords: mesoporous, $BaSnO_3$, gas sensor

*Corresponding author: Dake Zhang[1] and Cai Liu[2];

Address:

1.College of Electrical and Information Engineering, Beihua University, Jilin ,132013

2.College of Geo-Exploration Science and Technology, Changchun City 130012, China;

E-mail:

19657645@qq.com, liuGEST@163.com

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