

**Electronic Supplemental Information (ESI):  
Impact of Growth Method on the Structural and Electronic  
Properties of Nb:Bi<sub>2</sub>WO<sub>6</sub> Thin Films for High-Power pn  
Junction Applications**

Ichiro Takakuwa,<sup>a,b</sup> Ryusuke Seino,<sup>a,b</sup> Seiya Suzuki,<sup>b</sup> Keishi Nishio,<sup>b</sup> Shutaro Asanuma,<sup>c</sup> Yoshihiro Nemoto,<sup>d</sup> Yuki Nishimiya,<sup>d</sup> Yoichi Higashi,<sup>e</sup> Toshimitsu Ito,<sup>e</sup> and Makoto Minohara<sup>\*a</sup>

<sup>a</sup>*Global Research and Development Centre for Business by Quantum-AI technology (G-QuAT),  
National Institute of Advanced Industrial Science and Technology (AIST), Tsukuba 305-8568,  
Japan*

<sup>b</sup>*Department of Materials Science and Technology, Tokyo University of Science, Katsushika,  
Tokyo 125-8585, Japan*

<sup>c</sup>*Semiconductor Frontier Research Centre, AIST, Tsukuba 305-8568, Japan*

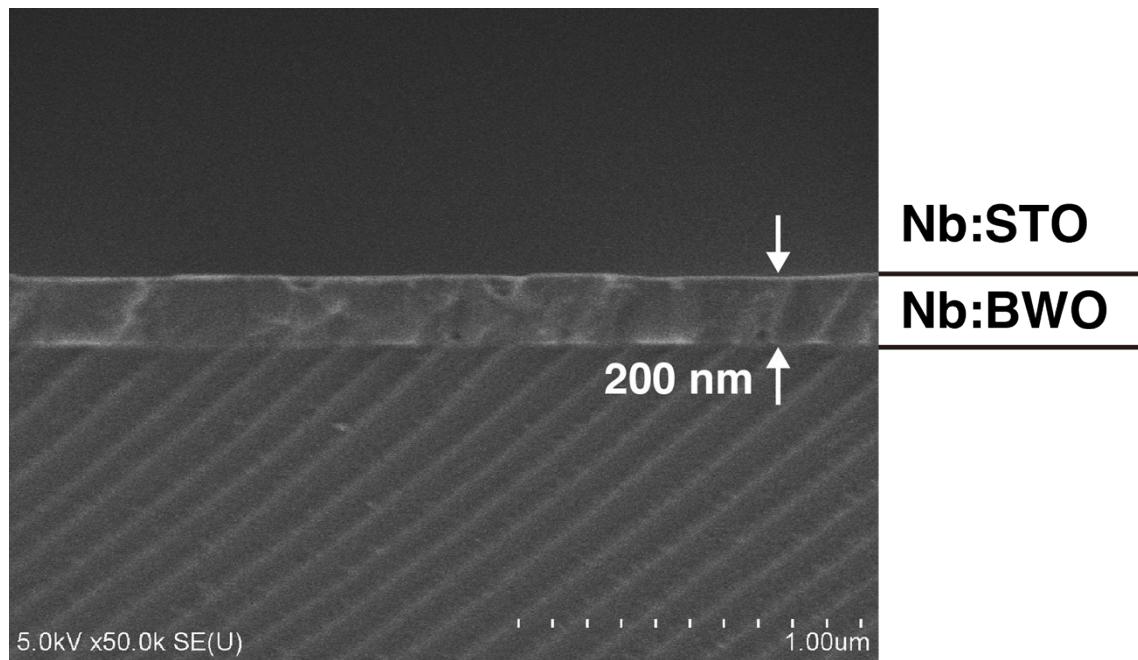
<sup>d</sup>*Electron Microscopy Unit, National Institute for Materials Science (NIMS), Tsukuba, Ibaraki  
305-0047, Japan*

<sup>e</sup>*Department of Electronics and Manufacturing Core Electronics Technology Research Institute,  
AIST, Tsukuba, 305-8568, Japan*

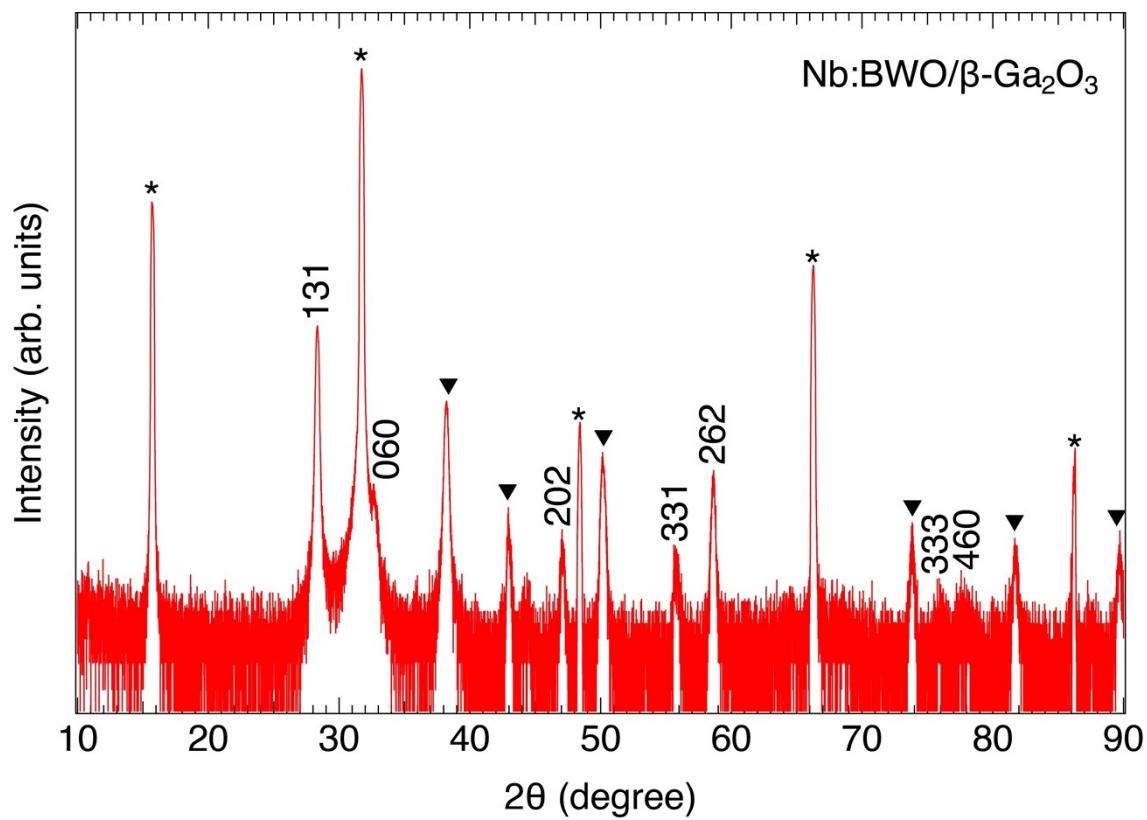
\* Corresponding author: m-minohara@aist.go.jp

This PDF file includes:

Figures S1, and S2



**Figure S1.** Cross-sectional field emission scanning microscopy (FE-SEM) image of Nb:BWO film grown on Nb:STO substrate.



**Figure S2.** XRD pattern of Nb:BWO film grown on  $\beta$ -Ga<sub>2</sub>O<sub>3</sub> substrate. Asterisks and triangles correspond to  $\beta$ -Ga<sub>2</sub>O<sub>3</sub> substrate and Cu/Ti/Au electrodes, respectively.