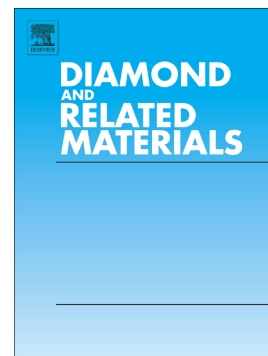


Accepted Manuscript

Effect of stripe orientation on dislocation propagation in epitaxial lateral overgrowth diamond on Ir

Kimiyoshi Ichikawa, Hideyuki Kodama, Kazuhiro Suzuki, Atsuhito Sawabe



PII: S0925-9635(16)30292-8
DOI: doi: [10.1016/j.diamond.2017.01.002](https://doi.org/10.1016/j.diamond.2017.01.002)
Reference: DIAMAT 6792
To appear in: *Diamond & Related Materials*
Received date: 6 July 2016
Revised date: 31 December 2016
Accepted date: 1 January 2017

Please cite this article as: Kimiyoshi Ichikawa, Hideyuki Kodama, Kazuhiro Suzuki, Atsuhito Sawabe , Effect of stripe orientation on dislocation propagation in epitaxial lateral overgrowth diamond on Ir. The address for the corresponding author was captured as affiliation for all authors. Please check if appropriate. Diamat(2017), doi: [10.1016/j.diamond.2017.01.002](https://doi.org/10.1016/j.diamond.2017.01.002)

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Effect of Stripe Orientation on Dislocation Propagation in Epitaxial Lateral Overgrowth Diamond on Ir

Kimiyoshi Ichikawa*, Hideyuki Kodama, Kazuhiro Suzuki¹, and Atsuhito Sawabe

Department of Electrical Engineering and Electronics,

College of Science and Engineering, Aoyama Gakuin University,

5-10-1 Fuchinobe, Sagamihara, Kanagawa 229-8558, Japan

¹TOPLAS ENGINEERING Com., LTD,

Ebisui Build. 1-9-9, Nishi-Tsutsujigaoka, Chofu 182-0006, Tokyo, Japan

*Corresponding Author. Email: d5612003@aoyama.jp (Kimiyoshi Ichikawa)

Abstract

Dislocation propagation during Epitaxial Lateral Overgrowth (ELO) of diamond on Ir using stripe nucleation with two different orientations was investigated by cross-sectional Transmission Electron Microscopy and Etch Pit Method. In case of $\langle 100 \rangle$ stripes with diamond $\{100\}$ growth sector, $[001]$ dislocation and large inclined dislocation were observed. For $\langle 110 \rangle$ stripes with $\{111\}$ growth sector, dislocation bending was observed with $[110]$ propagation preferred. These results demonstrate that stripe direction in ELO affects dislocation propagation during diamond growth. The control of growth sector can be used to influence the dislocation distribution in heteroepitaxial diamond.

Keywords; Diamond film, Heteroepitaxy, Epitaxial Lateral Overgrowth, Dislocation

Download English Version:

<https://daneshyari.com/en/article/5000706>

Download Persian Version:

<https://daneshyari.com/article/5000706>

[Daneshyari.com](https://daneshyari.com)