

論文 / 著書情報
Article / Book Information

題目(和文)	自己保持型磁気光学スイッチの低エネルギー化に関する研究
Title(English)	Study on low energy driving of self-holding magneto-optic switch
著者(和文)	矢島 駿
Author(English)	Shun Yajima
出典(和文)	学位:博士(工学), 学位授与機関:東京科学大学, 報告番号:甲第277号, 授与年月日:2025年3月26日, 学位の種別:課程博士, 審査員:庄司 雄哉,中川 茂,西山 伸彦,宮本 智之,雨宮 智宏,清水 大雅
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Category(English)	Doctoral Thesis
種別(和文)	要約
Type(English)	Outline

(博士課程)
Doctoral Program

論文要約

THESIS OUTLINE

系・コース： Department of Graduate major in	電気電子 電気電子	系 コース	申請学位（専攻分野）： Academic Degree Requested	博士 Doctor of	（工学）
学生氏名： Student's Name	矢島 駿		審査員主査： Chief Examiner	庄司 雄哉	

要約（分量指定なし）

Recently, the IP traffic is increasing rapidly and the silicon photonics technology is used to decrease the power consumption of the network equipment. However, there's a limit to the functions that silicon can offer, thus heterogeneous integration of different materials on silicon is gaining attention.

The previous research realized a self-holding function by using a magneto-optic material with a silicon waveguide. However, it had a problem of impedance mismatch and low efficiency magnet layout, thus the operation speed and the power consumption had a room for improvement.

In this research, operation speed was improved and the power consumption was reduced by redesign of the electrode and by changing the layout of the magnet. Furthermore, high write cycle endurance was demonstrated.

備考：論文要旨は、和文 2000 字と英文 300 語を 1 部ずつ提出するか、もしくは英文 800 語を 1 部提出してください。

Note: Thesis Summary should be submitted in either a copy of 2000 Japanese Characters and 300 Words (English) or 1 copy of 800 Words (English).

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