

Impact of impurities and annealing conditions on the characteristics of Si/HfO₂ :Al/TiN ReRAM devices

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출처
(Source) [한국진공학회 학술발표회초록집](#) , 2020.2, 222-222 (1 pages)

발행처
(Publisher) [한국진공학회](#)
The Korean Vacuum Society

URL <http://www.dbpia.co.kr/journal/articleDetail?nodeId=NODE09318822>

APA Style Jongseok Woo, Changhwan Shin (2020). Impact of impurities and annealing conditions on the characteristics of Si/HfO₂ :Al/TiN ReRAM devices. 한국진공학회 학술발표회초록집, 222-222.

이용정보
(Accessed) 이화여자대학교
203.255.***.68
2020/05/18 04:08 (KST)

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TT-P025

Rashba effect and optical transitions of MAPbI₃ organic-inorganic perovskite crystals under high magnetic fields

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We investigate optical transitions of an MAPbI₃ crystals in high magnetic fields to 50 T. It show strong temperature dependent optical transitions while cooling from room temperature to the liquid helium temperature. A sharp PL peak at 1.628 eV is originated from the surface state. The broad peak composes of four multiple peaks of excitons. We analyze exciton transitions by using Rashba effect. It is known that this MAPbI₃ shows Rashba effect[1] due to the strong spin-orbit coupling. We attempted to calculate Rashba excitons in high magnetic field and compared with the experimental results.

Keywords : MAPbI₃, photoluminescence, Rashba effect

TT-P026

Impact of impurities and annealing conditions on the characteristics of Si/HfO₂:Al/TiN ReRAM devices

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ReRAM (Resistive Random Access Memory) devices has been investigated for next-generation high performance nonvolatile memory. Metal-oxides ReRAM using HfO₂ exhibited nonvolatile memory characteristics in terms of switching speed, on-off resistance ratio [1]. In this work, the effects of resistive switching on the characteristics in Si/HfO₂:Al/TiN device structure were investigated. We will discuss the impact of impurities and thermal annealing conditions on the electrical characteristics of the devices.

Keywords : Random access memory, annealing, resistive switching